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TRANSACTIONS

OF

THE ASIATIC SOCIETY

OF JAPAN.

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USEFUL MINERALS AND METALLURGY OF THE JAPANESE.

By A. J. C. Geerts.

[*Read before the Asiatic Society of Japan, 14th October, 1874.*[1]]

The knowledge which the Japanese possess of Mineralogy and Metallurgy is chiefly given them by the Chinese. It is a fact, that the old civilization of the Chinese is at least *two thousand* years older than the Japanese culture. China (and Corea) have influenced largely the scientific, philosophical, technical and religious development of the Japanese. Some few Japanese believe that already before Zin-mu Tenno (660 B. C.) literature was known in Japan, but this is very improbable, because there are many proofs that the Chinese of the 2nd century before Christ considered the Japanese to be "savages," whilst Japanese chronicles only speak of this period in a legendary or mythological manner. It does not matter much what we may think about the descent of the Japanese. We may believe with Von Siebold[2] that several tribes from "Dats" (Tartary) have retreated to Japan; we may take the Japanese with *Malte-Brun* and others for *Autochthones*, or *Aborigines*;[3] we may even adhere to the strange, nearly ridiculous hypothesis of the pious Kaempfer,[4] who carries [2] the Japanese from Babel to Japan; or we may finally think with Thunberg[5] that the

[1] Revised by the author, 1882.

[2] *Siebold.* Verhandeling over de afkomst der Japanners. Verh. van het Batav. genootschap. (Transactions of the Batavian Society.)

[3] *Malte-Brun.* Précis de la Géographie Universelle. Tome III, p. 485.

[4] *Kaempfer.* History of Japan. 1 Book, Chap. VI.

[5] *Thunberg.* Voyage au Japon, traduit par Langlès. Paris, 1796, Tome II. p. 97.

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inhabitants of these islands took their origin from the Chinese. So much is at least sure that the Japanese till the time of Zin-mu Tenno consisted of different hunting tribes, which were gradually united and polished by the developed mind of the first emperor. That Zin-mu at least was not an Autochthone, but from Tartar descent, we think very probable, although this is not proved. From this time the culture of the Japanese comes from China, either directly or through Corea. The time of the first contact of the Japanese with the Chinese lies in darkness. The Japanese chronicles *Nippon-o-dai-ichi-ran* and *Wa-nen-kei* speak of a Chinese doctor *Jofuku* or *Jo-fu* who came to Japan in 219 B. C., together with many other Chinese colonists, and landed at Kumano in the province of Kii. *Jo-fuku* is said to have come to Japan by order of the Chinese emperor Schi-Hoang-ti, to seek and find in this country a herb for immortality. There is some doubt as to the truth of this story, which is accounted by Professor Hoffmann as a myth.[6] This however is pretty sure, that in the year 27 B. C. a Corean envoy out of Sinra (old kingdom of Corea) came to Japan, and presented to the Mikado Suinin different precious objects. Prince *Atogi*, a son of a Corean king, brought in 284 A.D. the first knowledge of Chinese literature to Japan,[7] and in the following year (285) a Chinese philosopher Wang-schin (Japanese Wa-ni) was sent out to teach the Chinese language in Japan. The culture of silk was introduced in Japan by Chinese colonists in the year 463. Chinese artisans built in 468 the first two-storied houses in Japan. But it was principally after the introduction of the Buddhist religion that arts and sciences found their way to Japan by many priests and doctors. The Buddhist religion was brought from India to China in 58-75 A.D., spread in 372 to Corea, from which country Buddhist priests brought this faith to [8] Japan in the year 552.[8] At that time numerous artists, artisans, and physicians joined the Buddhist priests in their travels to Japan, whilst the Japanese in the 7th century also commenced to go abroad to learn medicine, the arts and sciences. Thus a Corean priest *Kuwan-kin* brought in 602 chronological and astronomical works to Japan. Another

[6] Nippon Archiv VII. p. 107.

[7] Nippon Archiv VII. p. 111.

[8] Nippon Archiv VII. p. 126, out of the Japanese chronicle *Nippon ki*.

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Corean priest, *Tan-tsching*, introduced the manufacture of paper and ink in Japan, which industry was energetically furthered by the famous prince-priest *Sho-toku-daï-shi*.[9] Until that time the Japanese had written on silk or hemp-tissue. All metallurgical processes, and especially the art of minting, the Japanese also learned from the Chinese. In the year 708 A.D. the first Japanese copper-coin called *Wa-do-kai-chin* was cast after the model of Chinese cash, which were till that time circulating in some parts of Japan, although in other parts of these islands only a barter-trade existed. This event has been immortalized in Japanese history by the institution of the *Wa-do nengo* (Japanese copper *nengo*) (708-714), as the reign of the Mikado *Gen-meï* is called.

Although gold and silver were known in China from the earliest times, the first Japanese gold was found and melted in 749 A.D., and the first Japanese silver in the year 674. It is a remarkable fact that the discovery of these metals, which were known to the Egyptians, the Chinese and old Greeks, and of which Moses and Homer already speak very distinctly, was not made in Japan at an earlier period.

Thus we see that the art of Metallurgy—although very primitive—was introduced in Japan, together with other arts, sciences and the Buddhist religion. Von Siebold has expressed this very view in the following words :—" The Hindoos and Chinese were for the Japanese what the Greeks and Romans were for the west of Europe, the [4] promoters of language, letters, arts, sciences, religion and politics."

The Metallurgy of the Japanese does not differ much from the Chinese and has, even in the present time, a purely practical, and not the least scientific basis.[10] Chemistry was as unknown to the old Japanese as it was to the Chinese. The latter have still the most extravagant, nay absurd, ideas of the changes to which matter is liable. By means of a long and patient experience the practical Chinese have originally found out their different melting processes ; they have digged their ores and fused their metals from the oldest time, without knowing the rudest elements of geology or chemistry. They do not differ in this

[9] *Dr. Hoffmann.* Japan's Bezüge mit der Koraische Halbinsel und mit Schina, nach Japanischen Quellen bearbeitet, in Nippon Archiv VII. Leiden 1832.

[10] The few metallurgical institutions, lately erected in Japan after the European system, of course excepted.

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respect from the old Celtic, Egyptian and other nations who knew in the most ancient times a rough manner of melting metals, without having the slightest scientific knowledge of it. Chemistry is the youngest of all natural sciences, and even in Europe till the middle of the 18th century (when Lavoisier, Scheele and Priestley founded the quantities period), the most extraordinary and false ideas prevailed about the changes to which matter is liable. But the western nations have largely profited by the discoveries of chemical science in ameliorating their Metallurgical processes, whilst the Chinese and Japanese have made no progress at all in this direction. Their methods are still the same as they have been for many centuries. Hence the melting of metals by these nations stands at present much behind our western methods.

Hitherto the Metallurgy of the Japanese has been described by no author. The classical and doubtless the best work which at any time has been written about Japan—the *Nippon Archiv* of Von Siebold, was never finished and contains but very little about this subject, whilst Kaempfer's History of Japan contains only some insignificant notices, which are often wholly erroneous.[11]

[5] Two valuable contributions to our knowledge of Chinese and Japanese Metallurgy are known to us: 1st, Stanislas Julien et Paul Champion's *Industries anciennes et modernes de l'Empire Chinois*. Paris, 1869; and 2nd, Dr. Burger's paper on the copper mines of Japan in the transactions of the Batavian Society *(Verhandelingen van het Bataafsche genootschap* 1836). Burger, the successor of von Siebold, was formerly at Desima in the service of the Dutch Government, and has also contributed very valuable materials to the knowledge of the Fauna and Flora Japonica.[12]

[11] For instance, page 81, "Antimony is wanting absolutely" (Antimony ores are very common in this country). According to Kaempfer "lead is not in Japan," whilst lead-ore is found in several provinces of Japan.

[12] After this paper was written (1874) there have appeared several interesting treatises and papers on this subject. It may be useful to mention them here:—

H. S. Munroe. The mineral wealth of Japan, a paper read before the American Institute of Mining Engineers, at the Philadelphia meeting, June, 1876. Published also in the *Japan Weekly Mail* of February 3rd, 1877, p 41, and February 17th, 3rd March, April 14th—and in the *Engineering and Mining Journal*, Vol. XXII, 9th December, 1876.

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In the following paper will be found partly the results of my own observations, made during five years' residence in Japan, and partly the translations of Japanese works on this subject. A collection of more than 300 different specimens of minerals out of different parts of Japan, enables me to give an exact account of many useful mineral products of this country. The Japanese works which I have perused are :—

1.— *San-kaï mei-butsu dzu-kuwai.* This work was written by Hirase

---

Official Catalogue of the International Exhibition at Philadelphia in 1876, published by the Exhibition Committee.

Plunkett. Report on the Mines of Japan, published by H. B. M. Legation at Tokio, 1875.

Coignet. Annales des Mines, Tome VI, 1875.

J. H. Gubbins. Notes of a visit to the Mines of Sado. Trans. Asiatic Society of Japan, Vol. III, Pt. II, p. 83-100. 1875.

Benjamin Smith Lyman. Kaitakushi Reports on the geological survey of Yezo. Tokio, 1874-76, 5 vols.

Benjamin Smith Lyman. A general Report on the Geology of Yezo. Tokio, 1877. Published by the Kaitakushi.

Benjamin Smith Lyman. Geological Survey of Japan. Reports for 1878-79. Tokio, 1879,—published by the Public Works Department.

Benjamin Smith Lyman. Two Reports of the Survey of the oil lands of Japan. Tokio, 1877 and 1878, published by the Public Works Dept.

C. Netto, M. E. On mining and mines in Japan, in the Memoirs of the Science Dept. University of Tokio. Published by the University, Tokio, 1879.

J. G. Hochstetter Godfrey. Notes on the Geology of Japan, in the Quarterly Journal of the Geological Society for August, 1878.

金石學, *Kin-seki-gaku.* Hand-book of Mineralogy, by Wada Ishiro and Tanaka Yoshiwo, published by the National Museum at Tokio, 1878.

金石學必攜, *Kin-seki-gaku-hitsu-keï.* Treatise on Mineralogy by Sugimura Jirō. Tokio, 1878.

金石對名表, *Kin-seki-tai-meï-hiyo.* Vocabulary of Mineralogy, published by the National Museum at Tokio, 1879.

山相秘錄, *San-so-hi-roku.* Treatise on Mineralogy and Metallurgy by Sato Genhaku. Tokio, 1876, 2 vols.

大日本貨幣史, *Dai-ni-hon-kuwa-heï-shi.* The History of coins and minting in Japan, published by the finance department, 1876-79. 37 volumes. This large work contains in Vols. 1-12 of the first Appendix a full description with illustrations of the metallurgy of copper, gold and silver.

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Tatsu-yai and illustrated by Hasegawa Mitsuno. It is published at Osaka and consists of 5 volumes 8vo. The first volume contains the description and representation of mining and smelting works.

2.—*Hon-zo-ko-moku Kei-mo*, a large work written by the celebrated Japanese naturalist Ono Ranzan and edited for the second time in 1847 by Ono-Tsune-nori and Te-ken-shi-yeki. It is a kind of commentary and Nomenclator on the famous Chinese work on natural history, called *Hon-zo-ko-moku* (Chinese *Pun-tsaou-kang-muh*), written by the Chinese savant *Le-she-chin* and published in China in the year 1596. A Japanese edition of this latter work was printed and edited 1714, by Ina-waka-sui. Ranzan's work gives explanations of Japanese names, synonyms and the places of occurrence in Japan of the numerous natural products, described in the above-named Chinese work. The work is interesting for every one who occupies himself with the natural history of China and Japan. Siebold calls the author Ranzan, who has a [6] famous name throughout this country, the Linnæus of Japan, and he has justly done so, because Ranzan's work has aided von Siebold and his coadjutors largely in composing their Flora and Fauna Japonica.

3.—*Ko-do-shu-roku* or Manual for the Metallurgy of Copper, a small work with illustrations.

We intend to describe the different metals in the following order:

a. The metallurgy of Iron, bar-iron and steel, with a list of the different iron-ores found in this country.

b. The metallurgy of Copper, constitution of Japanese bronzes and a list of the different Copper-ores.

c. The metallurgy of Lead and *Silver*.

d. " " *of Quicksilver*.

e. " " *of Gold*.

f. " *Manufacture of Arsenious Acid*, with a list of *Arsenic-minerals*.—

A.

Iron.

(Cast iron, bar-iron, steel.)

LITERATURE: *Siebold* Nippon Archiv II. von den Waffen, page 18.

Stan. Julien et Champion. Industries etc. de l'Empire Chinois. Paris, 1869.

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T. R. H. McClatchie. The sword of Japan. Transactions Asiatic Society of Japan, Nov. 78.

There are numerous iron-ores to be found in Japan. Those which are used in smelting iron are: 1°. MAGNETIC IRON ORE, the chief ore of Japanese iron-industry. There are two varieties, the massive magnetic iron ore with an iron grey colour and of compact constitution and the magnetic iron Sand with black colour and of sandy character. The Loadstone, another variety [7] of this ore, is also found in Japan. The Japanese esteem this ore highly and believe rightly that it produces the best steel for their swords. It is generally known that the good quality of the Swedish iron is chiefly due to this ore, which forms in Sweden only large mountainous masses.

Loadstone has been found in Japan for the first time in the year 713 A.D. in the province of *Omi*. The Japanese make use of it for manufacturing compass-needles, and as a medicine in disease of the heart. The Japanese name for ordinary magnetic iron-ore is: 玄石 *Gen-seki*, 磁鉄鑛 JI-TETSU-KO, Synon. *Roku-shu*, *Te-riu-sho*, *Gen-buseki*, *Gan-tetsu*. It is found in large quantities in Rikuchiu, Iwaki, Satsuma, Idzumo, Wakasa, Iwami, Hiuga. The magnetic iron sand is called 鉄砂 TETSU-SHA and occurs in nearly every province of Japan, although it is chiefly worked on iron in the province of Hoki, Idzumo, Bingo, Bitchiu and Harima.

The loadstone is named: 磁石 JI-SEKI or 慈石 JI-SHAKU, Syn. *Hari-sui-ishi*, *Kiu-tetsu-seki*, *Shinan-seki*. An excellent kind of loadstone is found in Sendai, Nambu, Bizen, Okayama, middle quality in Shinano, Kai and an inferior stone in Mino.

2°.—SPECULAR IRON-ORE (oligist ore or iron glance) having a steel grey colour with a brilliant lustre. The Japanese call this ore also GEN-SEKI, the name which they give to massive magnetic iron-ore. The difference in chemical constitution with the above named ore is not great, both being oxidic ores. We got a good specimen from Hiüga, and were informed that this ore is found also in other provinces, where it is also used in melting iron.

3°.—BROWN HEMATITE (Brauneisenstein of the Germans), 褐鉄鑛 *Katsu-tetsu-ko*. It occurs in Japan in different varieties, one of which is a very peculiar ore in spheroïdical grains, closely resembling our

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Limonite or Pea-iron ore (Bohnerz). Ordinary brown hematite is found in Idzumo, Mutsu, Hiüga, Satsuma, Shinano, Bizen and other places. The Limonite occurs in Japan in the provinces of Toza, Satsuma, Idzu and Totomi. The latter ore is also used in medicine as a hæmostaticum and is named: 無名異 MU-MIYO-I, MU-MEI-I, Syn. *Do-shi.*

4°.—RED HEMATITE, 赤鉄鑛 *Seki-tetsu-ko.* An impure variety. (Rotheisenstein). The Japanese red hematite is of an ochry, soft quality. One fine crystallised ore seems not to be [8] found in Japan, because it was sometimes imported in very small quantity from Europe and used by the Japanese as a much valued hæmostaticum for bloody wounds. The Japanese call the foreign hard fibrous haematite therefore, as we do, 血石 KETSU-SEKI (*pron.* kis-seki) lit. bloodstone. It is also called *Kananor*, after the place Cananoor in Malabar.

The impure, ochry variety is very common in Japan and called 代赭石 TAI-SHA-SEKI, Syn. *To-shu, Shu-seki, Shi-shu, Seki-shu.* It has much resemblance to our red chalk and is used in Japan chiefly as a medicine and for drawing.

Another still more impure variety, containing much clay, is very soft and powdery. It is quite equal to our red ochre and called 赤土 SEKI-DO, Syn. *Aka-tsuchi, Ni-tsuchi.* It is used as a veterinary medicine.

Tai-sha-seki is found in Mino, Akasaka, Owari, Tōtomi Kakekawa, Suruga, Aiga-mura, Bungo, Ono-gōri Kiura. Seki-do occurs at very many places.

5°.—CLAY-IRON-ORE, 粘鐵石 *Nen-tetsu-seki*, is very common in Japan. Besides the ordinary kind, I have several varieties in my collection. In Japan however it is not used—as in England—in large quantity for the purpose of smelting iron.

Var. A is a kind of tunicated clay-iron-stone (Thonige Sphærosiderit), also called in England *kidney-form clay-iron-stone.* It consists of hydrated sesquioxide of iron with silicic acid, alumina and some manganic oxide. The kidney form masses have a yellow-brown colour and are often hollow. Sometimes they contain petrifactions. It is the same kind of stone which formerly was used in Europe in pharmacy under the name of *Lapis Aetites.* In China and Japan this stone has still a great

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reputation as a remedy against dysentery. It is named 雨餘糧 U-YO-RIYO, Syn. *Ishi-nadango* (stone cake), *Ko-mochi-ishi*, *Ha-tai-ishi* and is found (according to Ranzan) in Yamato, Satsuma, Chikuzen, Tazima, Noto, Kai, Idzumi, Yechiu, Hiuga. *Var.* B consists of very large masses kidney-form clay iron stone, does however not differ in chemical constitution from the former. It is called by the Japanese: 太一雨餘糧 TAI-ICHI-U-YO-RIYO, Syn. *Tsubo-ishi* (lit. pot-stone), *Yoroi-i-ishi*, *Oni-no-tsubate*, *Fukuro-ishi* and is found in [9] Yamato Ikoma-yama, Yamashiro, Kitsube-no-yama, Sanuki, Kii, Idzumi.

Var. C is a yellow, ochry clay-iron-stone, very soft and not used for melting. It has a reputation as a medicine against head-ache, bears the names 卵石黃 RAN-SEKI-Ō, Syn. *Manju-ishi*, *Dango-ishi*, *Tsuchi-dango*, *Dango-iwa*, and is found in Buzen, Nakatsu, Awa, Higami-gun, Suwo, Iyo, Oshu, Tsugaru, Hoki, Noto, Kai, Arayi-yama.

6.—STALACTITIC SPATHIC IRON-ORE (Stalactitischer Sphaerosiderit) is, as far as we know, rare in Japan and seems to be found only in Yamashiro, Inari-yama and Yamato-yama. It forms small stalactitic masses of a yellow-brown colour, and bears the Japanese names: 土殷孽 DO-IN-KETSU, Syn. *Do-niu*, *Kitsune-no-ko-makura* (*Fox-pillow*), *Kuda-ishi* (stick-stone), *Kitsune-no-rosoku* (*Fox's candle*) and is a much valued old Chinese medicine. It is not used for melting iron. It seems to me that ordinary Spathic iron ore (Spatheisenstein) is also very rare in Japan, because I did not meet with samples and found no description of this ore in the above named Japanese works.

7.—IRON PYRITES. 黃硫鉄鑛 *Ō-riu-tetsu-ko*. All four varieties, the *cubical*, *dodekahedral*, *magnetic* and *nodular* are duly represented in Japan. The quantity of ordinary, dodekahedral pyrites, as well as of copper pyrites, is enormous in the country. There is scarcely any place where iron pyrites is wanting. It does not serve for melting iron, but finds a place in every drug-shop as a Chinese remedy.

A.—*Cubical Pyrites* occurs in fine crystallized specimens of circa 1 Cub. centim. and is wrongly called 自然銅 JI-NEN-DO or JI-ZEN-DO (Natural copper), Syn. *Kin-san-reki-shi*, *Kin-riki-shi*, *San-sari*. It is found in Shinano, Take-ishi-mura, Fuji-yama, Suwo, Yamaguchi, Bingo Yamaken-gun, Dewa, Satsuma, Kii Kumano, Idzu Nikkai and many other places.

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B.—*Dodekahedral Pyrites* is kept by the Japanese for a wholly different use to the former. They distinguish, according to the colour, two kinds, namely 金牙石 KIN-GE-SEKI, Syn. *Ho-kin-ge*, *Kana-Zako*= pyrites with a yellow (gold) colour and 銀牙石 GIN-GE-SEKI, Syn. *Ho-gin-ge*, *Do-gin*, [10] *Hakodasshi*=pyrites with white (silver) colour. Some of the yellow kinds contain sometimes a little gold and were formerly used for the extraction of gold, especially in Iwami Kinsan.

The chief places of occurrence are: Toza, Shinano, Mikawa, Tajima, Yamato, Iwami Kinsan, etc.

C.—PYRITES IN ROUNDED NODULES of radiated structure, superficially covered with oxide of iron, are called 蛇含石 JA-GAN-SEKI or JA-WO (Snake-stone). Old physicians use it against epilepsy and diseases of the heart.

D.—MAGNETIC IRON PYRITES OR PYRRHOTITE, 磁硫鉄鑛 *Ji-riu-tetsu-ko* is a very common ore in Japan and used for the manufacture of Sulphate of iron (copperas).

8.—CHROMITE OR CHROMOFERRIT, 苦羅彌鐵鑛 *Ku-ra-mu-tetsu-ko*, occurs in heavy greenish masses in the mine of Kiura, district of Ono, province of Bungo.

These are the principal iron ores which we found in Japan. Only the three first named species of ores are used in Japanese metallurgy.

The Japanese distinguish, as we do, three kinds of iron:

生鐵 NAMAGANE or *I-tetsu*, Cast-iron (pig-iron).

熟鐵 JUKU-TETSU or *Kera* or *Kitaye-tetsu*, Bar-iron (wrought iron, lit. ripe iron).

鋼鐵 HAGANE or *Ko-tetsu*, Steel.

The extraction of cast iron from the ore in Japan proceeds on the same principle as our blast-furnace method; there exists however a great difference of the form of the furnaces and accessory apparatus. Iron industry of the west has received in the last century a high degree of perfection, by the aid of modern chemistry. In China and Japan very imperfect small and rough furnaces are used. No care and no money are spent to erect large and more durable furnaces, and even although lately some Japanese are convinced of the advantage of European ovens, the people do not like to lay out money for the con-

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struction of proper working apparatus. This want of care and mistaken economy in the construction of utensils and proper furnaces is the chief fault in all branches of Japanese metal industry. Although there is an abundance of good material, I believe that it nevertheless will be still a very long time before the Japanese iron founders can compete with the prices of western metal. Whilst iron, with the exception of platina, is the least fusible of useful metals, it can easily be comprehended that the price of this metal is much more costly in this country than it is in Europe. After Japan was [11] opened to foreign trade, we saw therefore bar-iron become a regular article of import, which fact gave a heavy blow to the Japanese iron industry. For the last 15 years the Japanese have made little or no bar-iron *(juku-tetsu)*, because they can buy it cheaper from European merchants, than make it themselves. Cast-iron and steel are still made in Japan, although the fabrication of refined steel has lost a great deal by the abolition of the old feudal system, which caused the downfall of the famous Japanese sword. The new weapons of the army or at least the materials for the same are nearly all introduced from Europe. The Japanese believe, however, their steel to be of much better quality than that made in the west ; the price of the first is more than the double of the latter.

After the ore has been selected it is piled up in rude kilns with wood and calcined (roasted) in order to expel the water, carbonic acid, sulphur, etc. This calcination makes the ore more porous and better fitted for the smelting process. This process is done near the places, (mountains) where the ore has been found.

The calcined and powdered ore, or the washed iron sand, if the latter be used, which is mostly the case, is now smelted in a furnace with a bottom or hearth (called *fuki-doko* or *fuku-toko*), made up, at the depth of five feet, with hot charcoal and wood-ashes. The furnace is about four feet high, three feet broad and nine feet long and is built up, for each operation, with a few stones and much fire-proof clay. The clay is laid in layers till the wall of the furnace has sufficient thickness. The thick bottom of this small blast-furnace is on both ends a little inclined. Half a foot above the bottom a number of opposite openings are made in the wall for receiving so many tubes of the two large bellows.

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Besides, there are two other openings near the bottom of about 0.4 foot diameter, which are closed with clay-stoppers and afterwards opened to collect the fluid pig-iron and the slags which run out. Now the furnace, previously perfectly dried with a wood-fire, is filled with charcoal and the powdered calcined ore or iron sand, nearly equal weights of charcoal and ore being required. Some wood-ashes made of the fresh wood of *ma-ki* (Podocarpus macrophylla) are added to act as a *flux* and to separate, aided by the ashes of the charcoal itself, the metallic iron from the impurities which are taken by the *slag*. When the heat produced by the continuous strong stream of air, pressed into the furnace by means of the large treading bellows (called *Tatara*), worked by four to six workmen, has been sufficient to smelt the ore, the iron will gradually run in a liquid state to the bottom of the furnace and then runs partly off, with the slags, through the two lower openings in the walls of the furnace. When the fire has become about half a foot under the upper border of the furnace, another load of nearly equal weights of iron-ore and charcoal is put on and so on repeatedly as long as the blast lasts (about three days and nights). The furnace is broken to pieces on the fourth day and the pig-iron and raw-steel at the bottom collected and broken into smaller pieces by large hammers or falling weights. [12] The pig-iron obtained is sometimes purified by a second smelting in another similar, but smaller furnace, and cast in the desired forms.

The process is—as in our blast furnace system—founded on the reduction of the oxidised ore by means of the carbonic oxide, which is formed, when the carbonic acid, proceeding from the burning of the lowest parts of coal, passes over the red-hot fuel above the burning coal. It is this carbonic oxide which reduces the ore to the metallic state when it comes into contact with it at a red heat. The carbonic oxide is converted by this means into carbonic acid, while the iron is left in the metallic state. The iron and the slag both run to the bottom, where the slag forms a layer above the heavier metal. Old iron is worked by the Japanese in the same manner.

In the province of Satsuma, not far from Kagosima, a European blast-furnace has been erected for several years. Lately the Japanese Government has erected at Kamaishi, province of Rikuchiu, two large

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charcoal-blast-furnaces, with puddling ovens. The ore there is massive magnetic iron. Another blast furnace in foreign style has been erected at Naka-kosaka, province of Kotsuké.

The conversion of cast-iron into bar or wrought iron consists in removing as far as possible the carbon, silicon, sulphur, phosphorus and other substances from the cast-iron. This purification rests upon the principle, that when cast-iron is strongly heated in contact with air or oxide of iron, its carbon is partly evolved in the form of carbonic oxide, while the silicon is converted into silicic acid, which unites with another portion of oxide of iron to form a fusible *slag*. The Japanese follow the same principle, without however knowing the theory of this *puddling* process; they mix cast-iron with a little buck-ashes and some iron-scales, heat the whole with charcoal in small furnaces of fire-proof clay—similar to but smaller than the one already described—and keep the metal during several days (our Japanese author says *seven* days) in a fluid state, under continuous blowing with the bellows. We have not seen this process ourselves, because as already stated, the manufacture of bar-iron according to the old system is now almost abandoned in Japan. The puddling of the [18] iron is continued until the whole has assumed a granular, fluidless appearance. The Japanese seem to know this point exactly and at that time take the metal away, to bring it directly under the hammer, in order to squeeze out the liquid *slag* and to force the iron-particles into a coherent mass. Japanese wrought-iron is delivered to the trade in square or sometimes round cakes, under the name of *juku-tetsu* (ripe-iron). This Japanese method has much analogy with our old continental Catalan process, which is still in operation in the Pyrenees. The Japanese, however, make no use of the water-blast-pipe, used in the Catalan process. The bellows used by Japanese are of Chinese origin and already described by many writers on China. The large one (*Tatara*) worked by treading, in the manner of a seesaw, is only used in iron melting, the smaller one (*Fuyigo*) is in use in all other melting furnaces as well as in ordinary forges. The metallurgical bellows are much larger (sometimes 5 ft. long, 3 ft. high, 1½ ft. br.) but the construction is the same as the smaller. Bessemer's process for converting iron into bar-iron was unknown to the Japanese.

According to our Japanese author, refined steel is prepared in the

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following manner: A certain quantity of pig-iron is mixed with a little bar-iron in a crucible of fire proof clay; the whole is covered with borax (*Hosha*) and smelted in small furnaces during several (the Japanese author says *eleven*) days. The metal being separated from the slag, is hammered strongly and alternately cooled in water or oil. The Japanese author observes that forging and cooling is to be done:

For Ordinary Knives..... 4 times.
" Guns.....11 "
" Razors .....18 "
" Swords .....15 "

During the forging of the blades the greatest care should be taken that the anvil and its surroundings are clean, because Japanese armourers believe that the smallest particle of dust, and particularly lead or copper-filings, spoil even the best blades when forged.

The Japanese manner of preparing steel is different from our method. It is known that steel differs from cast-iron in its smaller quantity of combined carbon and from [14] bar-iron by a larger quantity of carbon. Now with our western processes steel is produced: 1st, by extracting carbon from the pig-iron (raw-steel); or 2nd, by combining bar-iron with the requisite amount of carbon (cement-steel). It seems, however, that a third method which is not used by us, but is used in Japan may produce good steel. It consists in smelting pig-iron and bar-iron together in certain well defined proportions. The borax dissolves many impurities in the slag. It must be said that chemistary has not yet explained the production of steel in a sufficiently satisfactory manner. Although steel owes its properties in a great measure to the presence of a just proper quantity of carbon, it is pretty sure that small quantities of silicon, nitrogen, aluminium, titanium and perhaps other elements are not without influence on the quality of the steel. Hence steel-manufacture is still a matter of chance, and this is proved also by the excellent kinds of steel manufactured by many oriental nations who have no knowledge of chemistry. Raw steel is produced in Idzumo at the same time with pig-iron by melting magnetic iron sand at a very strong heat.

When steel has been cast by the Japanese in the above mentioned way, and the different objects have got their shape and are sufficiently

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forged, it is cemented and tempered, in order to convert the soft steel into hard steel. The old armourers of Japan seem to have taken great care in this operation. The most famous armourers were held in high distinction, as has already been shown by Mr. McClatchie in his interesting paper.[13] They kept their method of cementing secret. The Japanese blades are hard and not very elastic, and belong for this reason to the class of cement-steel. An armourer told me that different blade-forgers cemented their swords in different manners, one of which consisted in finally covering the strongly-hammered blades with a liquid mixture of clay, loam, ashes, charcoal-powder and water. After drying this layer, the whole is exposed to a red heat and the glowing blades are cooled very slowly and gradually in warm water. The swords are then ground on a very precious [15] kind of whetstone, which is extremely rare in Japan, and finally they are polished.

Japanese historians give no exact account of the time when iron and steel were for the first time cast in Japan. They have noted only the first copper, silver and gold melting. On the authority of Von Siebold[14] a certain Prince called *Inu shiki*, who lived under the reign of the Mikado Sui-nin (29 B.C.—71 A.D.,) has the credit of having invented the forging of the first Japanese sword, but Mr. McClatchie gives us another version in his paper and informs us that the exact date cannot be fixed, because the history of the sword is mixed up so much with mythological relations, at least in those Japanese works which he had perused. According to Mr. McClatchie the *Koto Meijin*, a Japanese work on the history of the sword, written by *Kamada Saburo-daiyu* in 1791, tells us first, that a certain Amakuni from Uda in the province of Yamato is belived to have forged the first old divine sword *(ken)* under the reign of Siu-jin Tenno, (that is in 97-30 B.C.), and 2nd, that another Amakuni from the same place in the same province, it is believed, made the sword in imitation of the divine blade called "Clustering Clouds," during the reign of Mon-mu Tenno (697-707 A.D.) It seems to us, too, that the exact time of the first iron-industry cannot be given, and that it is certain only that the Japanese have worked their iron-ores from the 10th century.

[13] Transactions of the Asiatic Society of Japan, Nov. 1873.

[14] Nippon Archiv: Von den Waffen: page 18.

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The principal districts where iron is worked in Japan are, according to Ranzan and others, Idzumo, Bingo, Rikuchiu, Hiuga, Tajima, Wakasa, Satsuma, Suruga, Shinano, Kai, Tōtomi, Bizen and Bichiu.

The best steel is manufactured in Harima, Hoki, Idzumo and Iwami.

According to an estimate of the Mining Department (1877) the yearly average of iron produced till now in Japan is nearly 10 million lbs., or 4,800 tons, worth about 107,000 yen, which proves that the production of iron is as yet very insignificant. The Customs Statistics in Japan show that the medium yearly import of crude and manufactured iron is about equal to 11,200 tons, representing a value of 1,881,577 yen. Although the Japanese ore and iron sand are of an excellent quality, it will be difficult to predict a great movement forward in the Japanese iron industry, because the necessary coal is not found here, like in England and Belgium, in the immediate neighbourhood of the iron ore, whilst charcoal, although giving excellent results, rises in late years too much in price to expect an economical use of it in the blast-furnaces.

[TO BE CONTINUED.]

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OBSERVATIONS ON THE BAY OF SENDAI.

A SHORT ACCOUNT OF A FEW DAYS SPENT IN SENDAI BAY IN QUEST OF AN ANCHORAGE OR HARBOUR.

By Captain St. John, H. M. S. "Sylvia."

[*Read before the Asiatic Society of Japan, on the 14th October, 1874.*]

[16] On the 15th of July, after feeling the way slowly into the north-west corner of Sendai Bay, I found a partially sheltered anchorage in 3 fathoms behind the northern island of this numerous group, which are clustered together, according to the Japanese numbering 808.

The coast line of the main bay is here deeply indented, and the group of islands spreading across the mouth of this bight forms inside an inner bay, 8 miles long, by 4 broad, named Matsushima, after a village on the main shore. Unfortunately this fine space of protected water is merely a lagoon. At high tide it has 6 feet of water, pretty uniformly throughout, but at low tide a few boat passages leading through masses of ribbon seaweed and crossings from the islands to the mainland are the only open water. The eastern shores of these islands (*i.e.* facing Sendai Bay) are thickly studded with reefs and rocks, making the approach very troublesome. Probably there are as many reefs under water as there are above.

The highest of these islands is about 300 feet, the lowest about 30; generally speaking 60 to 80 feet is their mean height. They are cut up in a wonderful manner by narrow creeks and tiny inlets which frequently almost [17] join, being only separated by narrow ridges. I am unaware what distinguishes an island from a rock with the Japanese, but considering those that have trees or herbage of some kind on them as islands, the number 808 cannot be far out.

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The foundation of these islands is either a yellow sand-stone rock of soft texture, or grey grit, closely approaching conglomerate. The stratification is very distinct and horizontal; a few slips and faults I observed, but they were rare. The surface soil is a rich vegetable mould mixed with an arenaceous compost. At the head of most of these creeks there are a few small paddy-fields; but excepting these patches there is hardly any cultivation. This of course is easily accounted for by the scarcity of inhabitants. The principal village, speaking of this group of islands and the main shore in their immediate neighbourhood—in other words the west portion of Sendai Bay, is Ishibama, consisting of about 100 houses, and built on one of the islands; it has an anchorage capable of holding half a dozen small vessels between the island on which it is situated and the one next to it, and is in consequence considered the port of Sendai. The next most important village is Sabusawa, about one mile from Ishibama, consisting of about 150 houses: it is situated on another island. Shiwogama with about 500 inhabitants, built in the S.W. corner of the lagoon on the mainland, is 5 *ri* from Sendai and 2½ from Ishibama; it is the nearest village on the coast to Sendai. From here the produce of that large town and rice district is carried across in small boats to Ishibama, and there shipped for further transit in junks and other Japanese craft. Matsushima, a village on the mainland 5 miles west of Ishibama, has a population of about 500. Tōna, another village on the mainland, built on a low spit of land running out from the northern side of the lagoon, produces salt, as well as being a fishing establishment. With the exception of these few insignificant villages, there appears nowhere else a sufficient number of houses huddled together to deserve that name.

[18] The main land on this (W.) side of Sendai Bay is hilly, wooded, and wild, but does not appear to be farmed, as in most parts of Japan, and the patches of cultivated ground are few and far apart. In fact I have never seen, except further north in the province of Mutsu, a more scanty population, and so little cultivation. Ishi no Maki is a dirty, dilapidated town, built on the banks of the river Kitakami. It commences at about half a mile from the mouth of this river, and extends in an irregular way for three-quarters of a mile up both banks. The population I should judge to be about 7,000, all of a very poor class of

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people. I did, however, meet one or two rice merchants at the head man's establishment at another town near here, which I shall mention presently. There is no Government Official at Ishi no Maki, merely a head man, an authority found in even the smallest Japanese villages. The Kitakami is a fine and swift body of water, having a width abreast of the town of about 300 yards and a depth of 30 feet, but unfortunately like most other rivers falling into an open bay, has a bar, with only 12 feet of water on it. It is not a tidal river, the body of water being too great and powerful to allow of its being so; it is also clear enough to be drinkable half a mile up. A few large junks were anchored off the town, but the banks, which are piled and rudely wharfed, were crowded with large and perfectly flat-bottomed boats, 50 and 60 feet long by 12 and 14 ft. broad; these boats go 50 *ri* up the river (according to the boatmen) and bring rice from the interior, and when loaded draw about 18 inches of water. When the rice is being brought down in the autumn, I have no doubt the town will show a little more life, but at the present time (July) a more torpid place I have never seen in Japan. In the extreme north-east point of the bay, three and a half miles from Ishi no Maki, is a fishing village, named Watanoha, with a population of about 2,000, and very filthy. The stench from the rotting débris of fish, which covered the wharf, was sickening. Skin disease certainly was evidently prevalent. Ishi no Maki depends on its supply of fish from [19] this village, and as I walked back from the former river I met ponies, men and boys laden with bonito. These fish are caught in large set nets, each net having a look-out station attached to it, stuck on poles. The poles, for there are several lashed end to end, are 80 and 90 feet long, being erected in 12 fathoms. These flimsy-looking look-outs are kept wonderfully steady by large stones made fast to the bottom end of the poles, and guyed and steadied at the surface by anchors and cables. There are often as many as half a dozen men on the platform fixed on the top. These things when approached look like beacons, and even when sufficiently near to make out their real purpose, *i.e.* fishing, any one, unless he knew to the contrary, would expect they were on a rock, or at any rate in shoal water.

From Watanoha, the coast of the Bay trends S. E., 11 miles, terminating in the bluff point Amichanda, and after turning the corner

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runs along to the north, passing Kin-kazan within half a mile distance. Along this 11 miles of coast, which is rough, bold and hilly, there are several bays, but all open and devoid of shelter. A few miserably small fishing villages are scattered about the extreme ends of the bay. Occasionally a very small patch of cultivation is seen, but the country is almost all perfectly wild and wooded excepting the cape itself and a couple of miles back from it, which is clear and covered with short grass; here small herds of ponies were grazing.

Kin-kazan is entirely covered with old wood, though none of great size. Pine, cedar and a few deciduous trees form the chief cover. The temple is quite small and insignificant, and, except for some late slight repairs, would be in a ruinous state. It is one quarter of a mile from the landing place, and from it a path leads to the sharp peak of the island 1,000 feet high.

Another small ruinous temple and a few rude stone figures of Buddha, some on their heads, some on their shins or on their backs, point to the neglect and little interest now felt by the Japanese in their old customs. Large figures of the same god were lying about down below. I [20] walked up to call on the priest, but he was at Sendai. The chief individual about the place was a little stout old man, in European clothing. He was very civil, and excessively fond of *sake*, for he kept sipping at a bottle of the strongest alcohol. I gave him some claret to taste, but this he hardly appreciated as much as his own burning liquor. There are numerous beautifully clear streams in the island of delicious cold water. The coarse sand at the bottom and sides of these water-courses is thickly filled with mica. The ancient custom allowed no women to land on the island, but this is not now enforced. The deer which were grazing about the bare slopes as I landed were of old considered sacred; they are not so now.

I was rather amused when steaming across the bay, and wanted to communicate with a fishing boat. I stopped, as the small craft passed close to the interpreter, hailed the men to come alongside, but though only a few yards off, they paid not the slightest attention to him: he was dressed as a European. I then steamed after them, and got the boat close alongside, but nothing would induce the men in her to have the slightest communcation with him. The fact was they did

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not believe he was a Japanese. I have observed frequently, that they lose weight and respect among their own people when dressed as foreigners. The natives about this northern part of Nippon appear to me to be a variety of the true Japanese. They are coarser built, have higher cheek bones, are larger limbed and unmistakably darker; this latter peculiarity I take from the small children and women. The men, of course, being mostly fishermen and exposed to the sun and salt water, would naturally soon become very dark.

The north side of Sendai Bay is a low flat sandy beach: immediately behind this are rice-plains running far back into the interior, so far, in fact, that their extent cannot be seen. Some magnificent mountains towered in the extreme blue distance, still retaining a quantity of snow on the grand slopes.

[21] I have little else to say regarding this Bay, except that I expected to find a much more rich and populous country than I did, especially about Ishi-no-Maki. Pheasants and duck must abound in the winter, a few heron, gull (Larus argentatus), oyster-catchers (hœmatopus ostralgeus), ospreys (Aquila haliœtus) and the common cormorant, were almost the only birds I saw.

On one of the Islands I found a most perfect specimen of the lower part of the trunk of a large tree, petrified in the sand-stone 60 feet below the surface. It was in a small cleft, where the outer portion of rock had fallen out. The large roots were clearly seen, and the position of the tree was evidently such as it had grown in.

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A General Meeting of the Society was held on Wednesday evening, the 14th October, 1874, at the Grand Hotel. There was a good attendance. The Chair was taken by Sir H. S. Parkes, one of the Vice Presidents, shortly before nine o'clock.

The Minutes of the Annual Meeting having been read and approved, it was announced that the following gentlemen had been elected Ordinary Members of the Society since the last General Meeting:—the Rev. D. C. Greene, Messrs. Kingdon, Drummond Hay, J. Sichel, W. G. Howell, Hatakeyama, C. de Struve, and B. H. Chamberlain. It was also announced that several valuable donations to the Library and Museum had been made, the principal of which, a model of a gold mine and works at the Island of Sado, presented by Erasmus Gower, Esq., was exhibited on a side table and attracted considerable attention from those present.

The author being absent, Mr. Wilkin then proceeded to read the first of the two Papers for the evening, being the first of a series on "The Useful Minerals and Metallurgy of the Japanese." The subject principally treated in this Paper was the manufacture of Iron and Steel.

The Chairman said he was quite sure all the members and visitors present would join him in presenting the Society's best thanks to Dr. Geerts for his very valuable and interesting paper, and they would look forward with much pleasure to the future contributions of the series, which promised to be a very comprehensive one. He was glad to see many members present who were competent to discuss such an important subject, and he hoped they would favour the Society with the result of their valuable experience.

[22] After a few remarks from Mr. Erasmus Gower, who stated that he was then engaged in putting up some furnaces for the Japanese in the province of Kôdzuke (Jôshiu), where there was a considerable bed of ironstone, varying in thickness from 18 ft. to 8 ft., and needing only to be quarried,

Mr. Brunton said that in reference to the process described in the paper as being common in Japan, of keeping pig iron in a molten state for a lengthened time, which sometimes extended to seven days, and by this means producing a malleable or wrought iron, he thought he saw in this some resemblance to the principle of the Bessemer process as carried out in England. The Bessemer process consisted of a rapid combustion of the earthy matters and other substances in the iron, and this combustion was obtained by the introduction of large quantities of oxygen into a vessel containing molten metal. Although the paper did not mention the means by which the Japanese maintain the iron in a melted state, it might be supposed that it was done by blowing air through it with bellows, but whether this was the case or not, it seemed to him that this practice

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of the Japanese was similar in principle to the Bessemer process, as it maintained the iron for varied periods at very high temperatures, and so consumed the impurities contained in it.

Professor Ayrton remarked that in the paper a description had been given of the method of making steel employed by the Japanese. Could the reader inform him whether any of this steel was used to make steel wire of? He (Prof. Ayrton) had lately required steel wire of different thicknesses but the Kôgaku-riyô had stated that they had been quite unable to obtain any for him, even of foreign manufacture. Now if Japanese steel wire could be procured anywhere this difficulty might be overcome.

In reply to this, Mr. Wilkin said that he was not the author of the paper, but he was not aware that any steel wire was manufactured by the Japanese, though he believed copper wire was to some considerable extent.

Professor Ayrton then continued, and said that mention had been made of the badness of Japanese copper wire. Some of it had at any rate one good quality, about which he would say a few words. It would probably be known to many of those present that copper wire was largely employed in the manufacture of telegraph instruments and submarine cables. Now the wire, like all other conductors, offered a certain obstruction (or resistance as it was called) to the passage of the electric current, but this resistance might, for the same length and thickness of the wire, be immensely diminished by increasing the purity of the copper employed. Up to the laying of the first Atlantic cable it was imagined that any extra resistance in the conductor of a cable, produced by impurities in the copper, could be compensated for by increasing the battery power employed. Before, however, the construction of the second Atlantic cable of 1865, Sir William Thomson (whose name had lately been prominently brought before the Society in Captain Belknap's paper on Deep Sea Sounding in the Pacific) was led from purely [23] theoretical considerations to conclude that the commercial value of a long submarine cable could be doubled if pure copper wire were substituted for the impure wire previously employed; for he showed that the speed of sending, or the number of words that could be sent per minute, was *cæteris paribus* inversely proportional to the specific resistance of the copper employed, and could not be increased by increasing the battery power. Consequently those who up to that time had looked on the systematic electric testing of copper wire as unnecessary had now become most strenuous in urging its regular adoption, so that at the present time no coil of copper wire was employed in a submarine cable which had not, by being previously tested, proved itself to have less than the contract resistance.

A number of specimens of Japanese copper wire, of different gauges, had recently been electrically tested in this way in Prof. Ayrton's laboratory, and the result had been that, while many samples had as much as twenty or thirty per cent more resistance than pure copper, and therefore would be quite valueless for submarine cable or telegraph instruments, other samples had scarcely more resistance than if they had been composed of pure copper, in a few cases, indeed,

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not even one per cent more. Consequently, as far as conduction was concerned, wire like the good samples would be of great practical value for telegraphic purposes. The price per pound of both bad and good samples was practically the same, and less, or at any rate not more, than the wholesale price in England of commercial copper wire.

Mr. Gowland, F.G.S, of the Imperial Mint, Ôsaka, said that in reply to the remarks of the last speaker respecting the variable electro-conductivity of Japan copper, exceedingly high numbers having been obtained in some cases and low numbers in others, he would state briefly a few of the results to which he had been led by the chemical and physical examination and metallurgical treatment of about eight hundred tons of copper. The copper of Japan as a rule, when properly refined in a suitable furnace, was calculated to take a foremost place amongst the various kinds of commercial copper destined for electro-telegraphic or other purposes where special purity was essential. It was almost invariably free from the injurious metals antimony and arsenic, as well as from phosphorus. Antimony he had never found excepting in traces, and arsenic when present rarely in larger quantities than ·03 per cent. In fact when the crude copper was carefully selected and subjected to the Welsh process of refining, the resulting metal should consist of almost pure copper with traces only of lead, iron and silver. The importance of the purity of copper and of its special freedom from antimony, arsenic and phosphorus had been exhaustively treated by Matthiessen in a paper communicated by him to the Royal Society and afterwards published in their "Transactions." His results were obtained from experiments made upon impure, pure, and alloyed specimens of copper, the composition of which he had previously determined by chemical analysis. These results were opposed to some experimental [24] results obtained by Sir Wm. Thomson, not however because the experiments of Sir W. Thomson were imperfectly conducted, but because alloys of inaccurate composition were supplied to him. The reason, however, why Japanese copper wire, or copper in other forms, was so variable in its physical character were, these:—

The Japanese were unable to produce uniformly by their refining process, a pure copper in the technical sense of the term. They could produce a copper as free from foreign metals as we could by our methods of refining, and thus far as pure, but they could not produce a copper which should uniformly contain just that proportion of cuprous oxide which was absolutely necessary to give maximum toughness, tenacity, ductility, and electro-conductivity, and without which uniform proportion the purest commercial copper was worthless for most purposes. A deficient quantity of cuprous oxide or an excess would equally condemn an otherwise pure commercial copper. The variations in the physical characters of Japanese refined copper, especially in the form of wire, he had found to be usually due to excess of cuprous oxide, and not to the presence of foreign metals. The defects, however, produced by excess of this oxide could not be remedied by any treatment excepting that of remelting under proper conditions.

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Japanese crude copper occasionally contained excess of iron, and also of lead, metals however which were removed by refining, and when required for the production of a copper to be used for special purposes, as for alloying gold in minting, or for electro-telegraphy, it was advisable to make frequent careful analyses in selectiong it.

For further notes on Japanese copper Mr. Gowland would refer those interested to the appendix of the Report of the Imperial Mint, Ôsaka, for the present year. The copper ores usually worked in Japan yielded from 2½ to 12 per cent. of copper, although richer specimens occurred in small quantities. The smelting process of the Japanese was one for which he had great respect, for although it was rude and yielded but a small out-turn compared with European methods, yet he had seen it economically conducted amidst difficulties and in localities where no other process would succeed. Strange as it might appear, the principles upon which it was conducted and the chemical reactions which took place were identical with those of the process followed in Wales at the present time.

The following minerals of iron were worthy of note in addition to those mentioned in the paper :—

Magnetic Iron Sand.—A fine black sand consisting of more or less perfect octahedra of magnetic oxide of iron. It occurred largely in the province of Aki, and was smelted there by native method.

Magnetic pyrites occurred massed in large quantities in several parts of Settsu, in Ômi and Yamato, and probably in many parts of Japan. It occurred in the interior of Yamato [25] in veins 2 to 3 feet or more in thickness, mixed with copper pyrites, yielding often as much as 12 per cent of copper and being then worked as a copper ore. In Ômi it occurred rather extensively, associated with a rich argentiferous galena and arsenical pyrites.

The old process of native steel manufacture by melting together wrought iron and cast iron was curiously interesting, as an almost identical process had been patented and worked by a Sheffield firm during late years.

The process for manufacturing wrought iron described in the paper appeared to be a kind of lengthened puddling process, and must be attended with great loss of iron.

Professor Ayrton then again rose, and said that he had derived much pleasure from listening to Mr. Gowland's remarks, especially those connected with the impurities which chemical analysis showed to exist in Japanese copper wire. Like him he had found the wire brittle, but he had to a great extent got over this objection by insisting on the wire being carefully annealed before it was supplied to him. He was afraid Mr. Gowland had somewhat misunderstood what he (Prof. Ayrton) had said regarding the action taken by Sir W. Thomson. Prof. Thomson's conclusions regarding the connection existing between the speed of signalling and the resistance of the conductor of the cable were based on mathematical reasoning, and not, as Mr. Gowland appeared to think, on tests of alloys of copper submitted to

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aim. Probably, after theoretical considerations had led Sir William to see the immense practical value to be derived from the systematic testing of the resistance of copper wire, he might have asked wire-drawers to furnish him with samples in order that he might see how good it was practically possible to get copper wire; but the testing of these samples could not in any way affect the results he had previously obtained mathematically, and to which Prof. Ayrton had referred in his previous remarks.

The Chairman (Sir Harry S. Parkes) then closed the discussion on this paper with a few observations on the subject generally, and after a few introductory remarks proceeded to read the second Paper, by Captain St. John of H. M. S. *Sylvia*, entitled "Observations on the Bay of Sendai."

Mr. Brunton then made a few remarks to the effect that Ishi no Maki had seemed to him on his visit there a short time ago to be a tolerably clean and well-to-do town. The bar across the river mouth, however, on which there was not more than 2 or 3 feet of water, was a great obstruction to the shipping importance of the place. There is no shelter for vessels lying off the mouth of the river, and it was therefore quite unsuitable as a port. There was harbour, however, to the eastward of Ishi no Maki called Ai-kawa, which offered good shelter to vessels, being open only on a very small arc towards the south east; but as this harbour was surrounded by steep hills, it also was useless as a commercial port.

The meeting then terminated in the usual manner.

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USEFUL MINERALS AND METALLURGY OF THE JAPANESE.

By A. J. C. Geerts.

[*Read before the Asiatic Society of Japan on the 18th November, 1874.*]

COPPER.

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Japanese Mineralogy.—Seki-hin-san-sho-ko.[1]

[1] See also the works mentioned on p. 5.

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According to the Japanese naturalist *Ono Ranzan*, copper was melted in Japan for the first time in the year 698 A.D. at Inaba in the province of Suwo, whilst ten years [27] later—in 708—the first Japanese copper-money "*Wa-do-kai-chin*" was cast in the province of Musashi.[2]

The different ores of copper in Japan which have come to our knowledge, are:

First.—Copper Pyrites, Chalcopyrite 黄硫銅鉱 *O-riu-dō-kō* the most important of all Japanese copper-ores. It varies greatly (mostly between 2-14 per cent) in the quantity of copper which it contains, although I have found in some fine specimens up to 24% copper. Several samples which we collected in different parts of Japan contain much less copper than the good copper-pyrites from Devonshire. With few exceptions, the quality of the Japanese copper-pyrites cannot be said to be excellent; the quantity, however, in which this ore seems to be found in nearly every province of this country, makes a worthy compensation. We sometimes saw bright brass yellow ore, but often yellow-gray amorphous masses, containing a considerable admixture of magnetic iron-pyrites and arsenical-pyrites. The old Japanese names for this ore are: 銅鉱石 *Dō-kō-seki* or *Haku-ishi*, Syn. Akagane-no-arakane. It forms with the three following minerals the source of all Japanese copper. Besides there are also several other copper minerals in Japan, but these are not, or very seldom, used in copper smelting.

The Japanese copper pyrites of some provinces (Sado, Akita, Ani, Kosaka in the province of Rikuchiu, Iwami, Tajima, etc.,) contains a little gold or silver or both metals, which the Japanese know very well how to separate by a *liquation* and *cupellation* process [see later under silver].

Second.—Copper Glance or Chalcocite occurs in many places with copper pyrites, and is used with the latter ore in the copper-metallurgy. The specimens which we have received constitute amorphous masses of a dark gray colour and are of good quality. The

[2] *Wa-nen-kei* or Chronicle of Japan, translated from the Japanese by Prof. Hoffmann in Siebold's Nippon Archiv.

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Japanese know very well that copper glance gives a much richer copper-slag than copper pyrites. They often melt it with the latter ore together, because it promotes the fusibility of pyrites and gives a better kind of copper. The scientific Japanese name for this ore is 輝銅鉱 *Ki-dō-kō*. [28] It is not found in such large quantity as copper pyrites, but still it is far from being rare. It is found in large quantities in the province of Ugo at Akita.

Third.—VARIEGATED COPPER ORE OR PEACOCK COPPER or BORNITE 斑銅鉱 *Han-do-ko*, seems to be rarer in Japan than the two former ores. *Burger* (l. c. page 10) states that it occurs in large quantities in Sendai, Nambu, Mount Monoko, where it is smelted together with copper pyrites. I was not able to find a description of this ore in the above mentioned Japanese sources, and the Japanese name here given has lately been coined by Japanese chemists. In many pieces of copper pyrites out of different provinces, I saw an admixture of peacock copper. In Iyo and Toza especially it occurs in considerable quantity mixed with copper pyrites.

Fourth.—GRAY COPPER ORE or "*Fahlerz*," 黝銅鉱, *Yu-do-ko*, a very compound mineral, containing variable quantities of sulphides of copper, iron, arsenic, antimony, lead and often silver. This ore is not rare in Japan; we have seen good specimens from Satsuma, Hiuga, Cho-shu, Toza, Iyo, Setsu, etc. Gray copper ore and copper-pyrites are the chief ores of Sumitomo's large copper-works at the mountain Besi-san in the province of Iyo (Shikoku) where the silver is also extracted by a process of cupellation.

These four ores are the sources of Japanese copper; the two first named are the most important for copper metallurgy. The last named is also of value in gold and in silver smelting. These minerals have produced the large quantities of copper smelted in Japan since the 10th century; they formed the chief article of export of the Dutch and Chinese at Hirado and Nagasaki during the period 1609-1858. The quantity of copper exported by the Dutch during that time amounts at least to more than four millions of piculs, whilst the Chinese probably have exported a still larger quantity. Besides the use of copper in daily life for all kinds of household goods, doors of godowns, roofs of temples, ornaments, temple-furniture, mirrors, smoking utensils, bronzes and

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especially copper money, has been for many centuries and is still so common and general, that it may be just called "the national metal of the Japanese."

[29] We will now mention some other Japanese copper-minerals, which are not used in copper smelting, but find, nevertheless, some useful applications in other branches of industry or daily life.

Fifth.—MALACHITE (green) 孔雀石 *Ku-jaku-seki* is found mostly scattered with the former ores, but seems not to be found in any large quantity. It occurs in irregular stalactitic aggregates of a radiate, fibrous structure with a silky lustre on the fracture and also in amorphous masses. An earthy variety of it, equal to our *Mountain-green*, is called 緑青 ROKU-SHO or IWA-ROKU-SHO, Syn. *Seki-roku*, *Hitsu-seki*, *Kon-ron-roku*. The best kinds are found in the copper mines of Tada in the province of Settsu, Ani in the Ugo province, Yamashiro-yama in Choshu, Ashiwo-yama in Kotsuke, Kusakura in the Aidzu district of the province of Iwashiro, etc., although very fine kinds of malachite used as a drug and paint were formerly imported by the Chinese at Nagasaki. Irregular pieces of fine coloured malachite are sometimes found as an ornament of the "*Tokonoma*" in Japanese houses.

It is used in the Japanese porcelain-industry as a green porcelain-paint, and also as an ordinary painting or drawing stuff. It can be found in the drug shops and is also used as an external medicine against some diseases of the eye and skin. For use in painting, powder of malachite is mixed with chalk and water; from this paste small half spheroïdal grains are made, which are known under the name of 玉緑青 *Tama-roku-sho* or *Mame-roku-sho* (Bean-malachite), and which are sold in every drug-shop. An impure sandy variety of malachite-sand, which is much cheaper, will be found under the name of 砂緑青 SUNA-ROKU-SHO and a greenish-white coloured kind of silicic-malachite (earthy variety), is sold under the name of 白緑 HAKU-ROKU.

Sixth.—BLUE MALACHITE or AZULITE or CHESSYLITE (earthy variety), [*Erdige Kupferlasur* or *Bergblau*] 銅青石 *Dō-sei-seki* occurs in amorphous earthy masses. We seldom met with fine crystallized specimens. It is dissolved easily in acids, with evolution of carbonic acid. It should be found—according to *Ono Ranzan*—in the copper mines of Ani in Ugo, Tada in Settsu, Ashiwo-yama in Kotsuke; at Uyeno in the province

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of Iga an inferior kind is said to occur. In the older Japanese works it bears the names: 空青 KU-SEI or IWA-KONJO, [30] Syn. *Gen-sei*, *Seki-sei*, *Tai-sei*, and is used in Chinese medicine as a caustic against some diseases of the eye and malignant ulcers. But the chief use is as a drawing and painting material.

It should be observed that the name KON-JO is a common name used by the common people for the most different *blue* dyes, such as Berlin blue, ultramarine, Japanese indigo (Dye of Polygonum tinctorium, LOUR.). This latter substance has, however, its own proper name, namely, RAN-DEN or *Ai-no-ori*. True *Kon-jo* is blue copper malachite.

A sandy variety of this ore is found also in Japan and is called 扁青 HEN-SEI or SUNA-KONJO. It should be known that, since the introduction in Japan of European ultra-marine, the name *Suna-konjo* is also given by Japanese drug-merchants to this latter substance. Real *Suna-konjo* is mountain-blue.

Seventh.—BLUE VITRIOL, BLUE STONE (sulphate of copper) is found in several Japanese copper mines either as an earthy aggregate, or in solution as "*blue water*," both being disintegrating products of copper-pyrites formed by a long continued action of air and water. The Japanese also know how to prepare this salt by roasting copper-pyrites and copper slags with free access of air and treating the roasted mass with water. This salt is, however, very impure and mixed with much sulphate of iron. It can be found in every drug-shop under the name of 胆礬 TAN-PAN or 石胆 SEKI-TAN, Syn. *Sei-seki-shi*, *Ao-ishi-no-ko*. Since the earliest times it has been used in Chinese medicine as a caustic in eye-disease, blennorrhœa and bites of snakes and other animals. Its conserving properties for wood are also known to the Chinese and Japanese. Tan-pan is prepared either out of the mineral, or by evaporation of the "*blue water*" in Akita, province of Ugo; Tokoro-no-kuchi in Noto; Satsuma; Ashiwo-yama in Kotsuke and many other places.

The preparation of cement copper out of the "blue water" by means of precipitation with iron or zinc, was formerly unknown to the Japanese but is now practiced in some places.

Eighth.—METALLIC, DENDRITICAL COPPER (copper moss) 自然銅 *Ji-*

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nen-dō seems to be rare in Japan, according to *Burger* l. c. [31] page 8 and *Martin* l.c. page 5. We have seen a few specimens at the museum in Tokio. It is said to be found in Iwashiro and Rikuchiu.

Ninth.—RED COPPER ORE (cuivre oxydulé, HAUY) 赤銅鑛 *Seki-dō-kō* is also found in Japan in company with ochre (brown, ochry haematite) and copper green (mountain-green). We have seen several specimens from Hiuga, Satsuma, and Nagato. The quantity in which it is found seems, however, to be very small, although it occurs scattered in several mountain ranges. It constitutes the mineralogical guide for the Japanese miners, for they consider it as the chief criterion for good copper ores and learn from this mixture of copper-green, iron-ochre and red copper where to construct mines. The Japanese miners call it sometimes *Yaké*. The experts of mines believe they can determine *à priori* the quality and quantity of the copper ore which will be found in the mountain, if they have examined the colour, the grain and other properties of *yake*. Thus the directions in which the mines are to be laid out, and the degree of declivity of the mine-roads, are chiefly determined by the occurrence of this mineral.

These are the Japanese copper-minerals known to us. We will now describe the metallurgy of copper, since the 16th century such a valuable branch of industry in this country. It will in future remain an industry of the highest interest for Japan. It is true, many of the very old mines, worked for several centuries, commence to be exhausted or at least give, by their long mine-roads and thin veins, so much trouble in bringing the ore to light, that they do not pay the cost of working. But in a country like this where copper-ore, and, especially, copper-pyrites, is found in nearly every province, new mines can be opened after proper borings and mineralogical surveys. The exhaustion of a few very old mines does not by any means involve the exhaustion of the Japanese soil. Exaggerated as were many of the old accounts of the enormous wealth of Japan, the opinion that the sources of copper-ore are also exhausted seems equally erroneous, because Japan has for centuries and without interruption been able to export copper, this metal having never been imported into this country. The relatively large quantity of copper exported by the Dutch and Chinese from 1609 to 1858 is small when compared with the [32] quantity of ore existing in

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different parts of the country. We think, however, that for giving practical results and pecuniary profit to the explorers of new mines, three principal changes will be necessary in Japan.[2]

First.—Better ordinary roads throughout the whole country and especially in the mining districts.

Second.—Liberal mining laws on the same basis as those in Western mining countries.

Third.—The introduction of Western knowledge, Western experience and Western machinery in working the mines, in removing the mine-water and smelting the ores.

The first point is so clear to every European that it is unnecessary to dwell on it. It would seem, however, that the Japanese Government is not yet convinced of this truth. What is the advantage of a few miles of railway for the thirty-five millions of an agricultural people, if even provinces so fertile as Kiushiu remain without good ordinary roads on which the numerous products of agriculture, the fisheries, mining and commerce can be transported on wheeled vehicles? A great many products cannot now be brought to market, because the cost of transport by means of pack-horses, oxen or human labour costs so much money and time. In Kiushiu, one of the most fertile and prosperous islands of the Japanese Archipelago, the roads are generally in a deplorable condition, and have become much worse since the abolition of the daimiates. To convey ores or metals over considerable distances, good roads or canals are matters of vital necessity.

The second point should also be a question of serious consideration with the Japanese Government, because the present mining laws are inimical to the interests and welfare of the country. There is no good reason why mining companies should not be formed from the union of Japanese and foreign capital, if these companies work under the supervision and control of the Government, so far as the stipulated royalty or percentage on the net proceeds, and the sanitary police are concerned.

The third point we believe also to be necessary in order to secure

[2] In the very interesting report (1879) of Mr. B. S. Lyman, who visited in 1878-79 most of the mining districts of Japan, we find the same remarks, although he is of opinion that many of the copper mines now worked must rather give loss instead of profit, on account of the veins being too thin.

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good practical results. It is true that the Japanese [33] methods of mining, but especially of smelting, are in a high degree laudable and practical, considering that only a small outlay of capital is wanted. But their methods are defective when compared with those at present employed in Europe, and also if we compare the quantity of metal obtained with that which *could* be obtained. Much metal always remains in the slag and stones which are cast away. Even until the year 1600 the Japanese did not separate the gold and silver from the copper ores which contained these metals.

Bürger has already described with much accuracy the manner in which the Japanese work their copper mines (l. c. page 14-99). Every one who has seen a Japanese coal-mine may learn from this how all other ores are dug, for, in Japan, there is no difference between the processes. On a greater or less, though generally on a moderate, incline, the Japanese miner digs at the foot or in the middle of a mountain his chief entrance, and is guided by his omnipotent *yake* as to the direction of the subterranean incline. As soon as he meets with veins of proper richness, he follows the direction of these veins. If the veins seem not rich enough, he digs steadily in the first or in another direction to meet with the main lode of the mine. Perpendicular shafts are not sunk by the Japanese in search of the ore. If the mine has a considerable length and depth, they sometimes construct small perpendicular ventilating shafts, as the air is not sufficiently renewed if there is only one opening. These air shafts, which unite the inclined road with the top or side of the mountain, cause a better draught of air and are therefore called *skakuhachi* (a kind of flute) or *kase-mawashi* (wind wheeler). In most mines however these air shafts are wanting, and in these cases the miners often suffer much in health from the effects of bad ventilation. The quantity of carbonic acid is sometimes so great that the flames of the small open mining lamps are extinguished. The greatest labour of the Japanese miner, however, is spent upon the removal of the water from the mine. The means resorted to for [34] this purpose are very primitive and insufficient, and the daily and nightly labour of more than a hundred men is often required to keep this enemy at bay. It sometimes happens that the whole mine has to be abandoned, when the water, especially in April and June, has flooded the mine unusually and

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demands excessive labour and expense to remove it. A number of defective bamboo and square wooden pumps, together with small hydraulic foot wheels, constitute the only machinery for removing the water. The combined system of sucking and forcing pumps, used in Western mines, is not known in Japan, whilst the use of steam as a motive power has as yet been introduced in but very few cases.

To bring the ore to light, the Japanese miner goes to the mine in the morning with a primitive kind of Roman lamp, consisting of a shell or small basin filled with oil, and a wick made of the pith of a kind of rush. He detaches the ore with two kinds of instruments, one of which closely resembles our double cutlass, the other being a mining chisel and hammer. The ore is nearly always extracted in small pieces to prevent the falling down of the inside of the mine, though proper care is taken to support it by wooden stays. A straw or bamboo basket receives the ore, but cannot contain more than 80-90 lbs. of mineral. The filled baskets are then dragged along the often long and steep incline of the road by means of a straw rope bound round the body of the workman or of women or children. Sometimes the baskets are carried on the backs of the miners. The wages paid to the miner are mostly according to the weight and quality of the *haku-ishi* (ore) brought out by him. The ore is cleaned from the adhering stones by hammering, mostly done by women and children. Thus prepared it is ready to be roasted. The roasted ore is then powdered and afterwards melted, till the so-called *blistered copper* (*schwarz-kupfer*—Jap. *ara-do*) is obtained. In former times this *ara-do* was sent to the Imperial copper refining works at Osaka. Here it was lengthened and refined to get pure "bar copper" (tough or poled copper—Jap. Saö-buki-do). [35] Lately the art of refining has been better understood in the provinces where the ore has been dug and smelted. This industry still flourishes, especially in the districts round Osaka.

The extraction of copper from the ore in Japan rests principally on the same basis as our Western continental copper smelting. The melting process according to the most complete Japanese method, called *Hitsu-buki*, is divided into several sections, but there is some difference as to the number of subsequent meltings in different parts of the country. The following melting processes are used at Osaka.

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1.—Calcining or roasting the ore to expel part of the sulphur, arsenic, water, etc., and powdering in order to obtain the black powder *Kudzu*.

2nd.—Fusion with silicate (ashes) to remove the oxide of iron formed by the roasting process, to convert at the same time the oxide of copper, formed by the roasting, into copper sulphide, and to obtain finally a coarse metal (*Spurstein*) Jap. 皮銅 KAWA-DO=Sheave copper.

3rd.—Calcination of the coarse metal: (*a*) to convert the still remaining parts of sulphide of iron into oxide of iron: (*b*) fusion with some of the clay of the covering to remove the whole of the iron in the slag: and (*c*) boiling the metal to expel the sulphur as sulphurous acid. 荒銅 ARA-DO=Crude copper.

4th.—Refining, to remove the cuprous oxide and bring the copper to tough-pitch. Tough copper, bar copper, 眞吹銅 MA-BUKI-DO and 竿吹銅 SAO-BUKI-DO=Copper melted bar.

1st.—Roasting the ore.

The dressed and coarsely powdered ore is calcined in a rude kiln (*Yaki-gama*) of about 25 metr. in length 2 in breadth and 1½ metr. high. The kiln is covered with a shed, and, near to the bottom of it, has many openings for the entrance of the air. On the bottom of this furnace a layer of dry wood is placed, then a layer of ore, and thus alternately wood and ore till there are five double layers. Fire is then placed below, and the whole left for a period of 20-25 days. Part of the sulphide of iron is converted into sulphate of iron, by absorbing oxygen at the beginning of the roasting, and this sulphate is afterwards decomposed by a higher temperature, evolving sulphurous acid and leaving oxide of iron. A very small portion of the sulphide of [36] copper is also converted into oxide of copper, so that the roasted ore consists actually of a mixture of oxide and sulphide of copper with oxide and sulphide of iron. During the roasting of the ore dense white fumes constantly escape from the furnace. The Japanese are rightly afraid of this poisonous 'copper smoke,' and very seldom resort to the place where the copper is burning so long as they perceive it. It contains often arsenious acid, antimonious oxide and always sulphurous acid, sulphuric acid, etc., all more or less poisonous substances, which have an intensely destructive effect upon the vegetation of the neigh-

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bourhood. When the fire is extinguished and the furnace cooled, the coarse copper slag is taken away to be powdered and to undergo the second operation. In the powdered state it is called *Kudzu*. It will be remarked that the roasting process of the Japanese is very rough, and constitutes one of the reasons why they do not obtain as much out of their ore as would be possible with a better system of furnaces.

2nd.—Fusion with silica of the hearth-ash to obtain coarse metal (*Kawa-do*).

The roasted slag is sometimes, but seldom, mixed with loam or ashes if the original ore does not already contain a sufficient quantity of quartz or silicial stone. The whole is exposed to a much stronger charcoal fire in order to get the slag fused. The small quantity of oxide of copper in the roasted slag acts upon the sulphide of iron still present in the ore, forming sulphide of copper and oxide of iron. The quantity of oxide of copper in the roast slag is, however, too small to decompose the whole of the sulphide of iron. This excess of the sulphide of iron now combines with the sulphide of copper to form a fusible compound, which separates itself from the slag and runs to the bottom of the furnace. The oxide of iron combines with silicic acid and forms a slag.

The furnace for this operation consists merely of a nearly hemispherical hollow made in the ground, and has a peculiar thick round bottom. This cavity is surmounted by a square chimney of bamboo and loam. The chimney is open on two sides up to a [87] height of 6 feet, and closed on the two other sides like ordinary forging hearths. The hearth and cavity (crucible) are formed of a mixture of fire-proof clay, charcoal and buck-ashes. The nozzles of a pair of bellows are inserted into one of the sides of the furnace at some small distance under the upper border of the same. The powdered roast slag, either mixed or not with ashes, is put into this furnace on the ash-hearth, the whole covered with charcoal, and heated until the mass is in a state of fusion. The melted black metal, consisting chiefly of sulphide of iron with sulphide of copper, is received in the cavity at the bottom. From time to time the silicic iron slag is removed from the surface of the molten metal, the coarse metal is cooled superficially by a little water and taken out of the cavity in the form of discs. In this state it is named *Kawado* or sheave copper.

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3rd.—Calcination of the coarse metal, fusion with a clay covering, and expulsion of sulphur as sulphurous acid, in order to obtain blistered copper (*Ara-do.*)

The coarse metal of the former operation is now placed with charcoal in cavities (thick crucibles) of fire-proof clay and buck ashes fixed in the ground and surmounted by square chimneys similar to that already described, and heated. A strong current of air is then directed upon the metal, and the latter is stirred with an iron rod to facilitate the oxidization of the remaining parts of the iron sulphide. The cavity is then covered with a thick plate, made from fire-proof clay and sand. The joints are plastered with a mixture of clay and buck-ashes, and, after drying, the whole is heated strongly. The remainder of the iron is absorbed as oxide by the slag, the latter being produced by the clay and buck-ashes of the covering plate and cavity. The temperature is raised gradually until the heat is as intense as possible and the metal commences—as the Japanese say—"to boil." This 'boiling' is caused by the action of oxide of copper upon sulphide of copper in a strong heat. By this action metallic copper and sulphurous acid gas are formed, the latter escaping with violent ebullition from the molten mass. After the ebullition, [38] the temperature is again raised to ensure the complete separation of the copper from the slag. The slags are removed and the metal is finally cooled with a little water and taken out of the cavity in the form of sheaves. It bears the name ARA-DO= crude copper (*Engl.* blistered copper: *Germ. schwarz-kupfer*) and is now carried from the melting place into the refinery.

4th.—Refining to obtain dry copper (*Gaar-kupfer*) (Ma-buki-do).

The two following operations were formerly practised at the Government Refinery at Osaka only; but are now common in all the provinces.

The blistered copper obtained by the foregoing process still contains some quantity of iron, sulphur and often a small proportion of tin, lead, arsenic, etc. To remove all these impurities about 150 kilogrammes of the metal are placed in cavities of fire-proof clay and buck-ashes similar to that already described, the whole is covered with charcoal, and air is allowed to pass over the surface of the melted copper. By these means small quantities of iron, tin, and also of copper are

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oxidized, and form with the silicic acid of the hearth or ashes a slag which floats upon the surface of the melted copper. At the same time any remaining traces of sulphur are removed as sulphurous acid. The slag is constantly removed with long iron ladles until the surface of the metal remains pure. Finally, a little water is thrown upon it to produce the solidity of the upper portion, so that a sheave of copper may be taken out of the cavity. This is repeated until the cavity is empty. The cakes of dry copper thus obtained still contain an excess of cuprous oxide, which is removed in the following manner. In the stage last described it is called by the Japanese MA-BUKI-DO="often melted copper" (*Gaar-kupfer*).

5th.—Casting the bar copper (*tough copper*) (*Sao-buki-do*).

In order to obtain the fine Japanese bar copper, which has a just reputation for its purity, the dry copper of the former process is smelted in quantities of from 30 [39] to 35 kilos in loose crucibles of fire-proof clay. The copper is covered with powder of pure charcoal in order to reduce the small quantity of sub-oxide of copper contained in the dry copper. This portion of sub-oxide makes the copper brittle and must therefore be partly at least removed if copper of great tenacity is required. The whole of the cuprous oxide is not to be removed, because copper which is perfectly free from the sub-oxide does not possess the maximum of toughness, a fact which the copper smelters in England fully recognize, taking the greatest care to avoid 'underpoled' as well as 'overpoled' copper. When the metal is liquified and all the impurities have been carefully removed from the surface, it is cast in iron moulds which are divided in 10-12 bar-forms, or sometimes also into square cakes. These moulds are placed in *warm* water and are then filled with liquid metal. As soon as the bars or plates are solidified, they are taken out of the moulds with a pair of pincers and immediately put for a short time into the vapour of boiling-water. By this means—which is not resorted to in Europe[4]—the copper bars or plates assume the beautiful high red colour characteristic of Japanese bar copper. It now bears the name of Sao-buki-do, i.e., copper melted in bars. If the roasting has

[4] In Europe a very small admixture of lead is sometimes used in order to obtain a fine red colour for the bars or plates.

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not been sufficient, there remain some traces of arsenic in the bar copper which make it brittle and greatly depreciate its commercial value. If the copper ore—as is the case with many kinds of copper pyrites and grey copper ore—contains enough gold or silver, the coarse metal obtained from the second operation is worked in another manner in the refineries. We will describe afterwards the process of separation of these precious metals, which consists of a *liquation* and *cupellation process*, in the "metallurgy of silver."

Ranzan states that copper is found and smelted in more than 40 provinces of Japan. Our different Japanese sources and my own observations give the following places as the most interesting *(vide* Japanese Mineralogy [40] *Seki-kin-san-sho-ko*, 2 vol., and *Ko-san-sei-ran-sen* or Short Indication of the chief Ore-bearing mountains).

Provinces.	Districts.	Places.	Remarks.
Yamashiro ..	Otagino-gōri	Kurama-mura.....	Chalcopyrite mixed with much iron pyrites.
Yamato	Yoshino-gōri	Tochiwo-mura .... Kawamata-mura .. Imai-mura ..... Nakatsu-gawa-mura Arako-mura..... Sakamaki-mura and other places.	In all 24 places, but mostly thin unworkable veins.
Settsu	Kawabe-gōri ..... Yabe-gōri..... Muko-gōri	Tamida-mura, Inabuchi, at two places. One place.	
Ise	Inabe-gōri	Ishidzure-mura, Haruta-yama. Numata-shinmachi-mura.	
Mikawa	Yana-gōri	Ōno-mura.....	Chalcopyrite with iron pyrites and galena.
Suruga	Abe-gōri	Nima-mura.	
Mino	Taki-gōri ..... Gunjō-gōri ..... Mugi-gōri ..... Kamo-gōri ..... Fuwa-gōri	Kokura-mura. Kansui-mura and Hatasa-mura. Zijikawa-mura and Kaki-no-mura. Shirakawa and Minami-do-mura. Akasaka-yama.	

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Provinces.	Districts.	Places.	Remarks.
Omi	Gamo-gōri	Kita hata-mura.	
Hida	Ono-gōri	Shokawa-mura, Shira-kawa-no-go	Chalcopyrite with gray copper ore and galena.
	Yoshiki-gōri	Higashi-urush-iyama	
		Kamiyoka-mura	
		Wasa-ho-mura	
	Mashida-gōri	Mashe-mura	
		Takame-mura, Dogo-san	
Shinano	Suwa-gōri	Yoko-gawa.	
	Takai-gōri	Ogo-mura.	
Shimotsuke	Aso-gōri	Ashiwo-mura	Chalcopyrite with variegated copper ore; yields about 500 piculs copper a year.
		Kobiyaku-mura	
Iwaki	Karita-gori	Obara-mura.	
Iwashiro	Aidzu-gōri	Kusatsu-mura and Gamo-mura.	
	Kawanuma-gōri	Shitaya-mura	Associated with zinc blende.
		Itani-mura.	
		Shimotani-mura.	
	Onuma-gōri	One mine.	
Rikuzen	Tamatsukuri-gōri	Naruko-mura.	
		Motoyama.	
	Kami-gōri	Miyazaki-mura.	
Rikuchiu	Kadzuno-gōri	Osaruzawa	Large mine; yields about 5,000 piculs copper a year, chalcopyrite with bornite and zinc blende.
		Nigorigawa-mura.	
		Shirane, Oyu-mura.	
	Waka-gōri	Yuta-mura.	
		Yamaguchi-mura.	
Mutsu	Sannohei-gōri	Yago-mura.	
		Daikoku-mori-yama.	
	Tsugaru-gōri	Ikari-gaseki-mura.	
Uzen	Murayama-gōri	Tanuki-mori-mura.	
		Sachibu-mura.	
	Mogami-gōri	Minami-yama-mura.	
	Tagawa-gōri	Otori-mura.	
Ugo	Akita-gōri	Ani-do-san and Kagoyama	Large mines; yield about 6,000 or 7,000 piculs copper a year, besides 1,500 piculs lead and some silver and gold.
		Kasuda-mura.	
	Semboku-gōri	Yamatani, Kawasaki-mura.	
		Arakawa-mura.	

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Provinces.	Districts.	Places.	Remarks.
Wakasa	Oi-gōri	Nojiri-mura.	
Yechizen	Ono-gōri	Nakashima-mura ..	Old and important mines, said to produce the best copper of Japan, fine chalcopyrite with some silver and lead glance.
		Kadono-mura	
		Hosono-guchi-mura.	
		Waka-ubuko-mura..	
		Kami-akibu-mura ..	
		Hakogase-mura	
		Kami-daina-mura ..	
		Migurashi-mura....	
Kaga	Nomi-gōri	Yusenji, Kanahira-mura.	Fine ore; yields about 1,000 to 1,200 piculs copper a year.
Yechiu.....	Nikawa-gōri	Inamura.	
Yechigo	Kambara-gōri	Kusakura	Yield about 1000 to 1200 piculs copper yearly.
		Funa-uchi-sawa.	
		Otani-mura.	
		Kase-mura.	
		Nishi-mura.	
	Uwonuma-gōri	Imokawa-mura.	
	Mishima-gōri	Mase-mura, Nodzumi-mura.	
Sado (Island).	Hamochi-gōri	Toyoda-mura	Chalcopyrite with some gold and silver.
Tango	Kasa-gōri.....	Kanazaki.....	Chalcopyrite with galena
		Nobara.	
Tajima	Asaku-gōri	Kanagase.....	Copper pyrites with a little silver.
Inaba	Iwai-gōri	Gin-zan-mura, Gamo.	Very poor ore.
	Kita-gōri	Mitsumoto-mura.	
Idzumo	Yu-gōri	Higashi-iwasaka-mura	Copper pyrites and copper glance; yearly produce about 1500 piculs coarse copper.
		Adakaye-mura	
		Ushirono-tani	Yearly produce about 700 piculs coarse copper.
	Shimane-gōri	Shimo-ubewo-mura.	
	Tatenui-gōri	Kawashimo-mura.	
	Kando-gōri	Udo-mura	Copper pyrites with a little silver; very good mine; yearly produce about 4000 or 5000 piculs.

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Provinces.	Districts.	Places.	Remarks.
Iwami	Nima-gōri	Sama-mura, Gin-zan	Old and celebrated silver mines which also produce some copper.
		Mikiyama, Shorenji.	
		Kombu-yama	
	Kano-ashi-gōri	Toyokase-mura, Sasagatani	Copper and arsenic mine.
	Ochi-gōri	Otohara-mura.	
	Mino-gōri	Tsumo-mura.	
Harima	Jinto-gōri	Nishi-obata-mura.	
Mimasaka	Kume-nanjo-gōri	Shimo-nikayamate-mura.	
	Kume-hokujo-gōri	Kume-kawa.	
		Minami-mura.	
		Horii-kami-mura.	
	Sai-saijo-gōri	Shimo-bara-mura.	
	Yeta-gōri	Toge-mura.	
Bizen	Akasaka-gori	Yoshiya-mura	Fine copper pyrites.
		Shimo-niho-mura	
		Nishi-naka-mura	
		Ida-mura	
		Yamaguchi-mura	
	Wage-gōri	Aidane-mura.	Fine copper pyrites.
Bitchiu	Kawakami-gōri	Fukiya-mura	Copper pyrites with bornite and gray copper ore; fine copper.
		Maruyama-mura	
	Jōbo-gōri	Kawaseki-mura	
		Nagashiro-mura	
	Kayo-gōri	Yama-no-kami-mura.	
Aki	Takamiya-gōri	Shimo-fukagawa-mura.	
Suwo	Kuga-gōri	Futaka-yama.	
Nagato	Amu-gōri	Zomeki-mura	Chalcopyrite with bornite; yearly produce about 1000 to 1100 piculs coarse copper.
Kii	Muro-gōri	Yoshikawa-mura	Copper pyrites with iron pyrites, poor veins.
	Ita-gōri	Amano-mura	
		Maruyama	
	Hitaka-gōri	Iyatani-mura	
Awa (Shikoku)	Oye-gōri	Kawada-yama	Copper pyrites with iron pyrites. None of the copper mines seem to be very promising.
	Mioto-gōri	Hakukáshi-yama	
	Mima-gōri	Nishibata-yama	
		Handaguchi-yama.	
	Miyosai-gori	Jin-riyo-mura	

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Provinces.	Districts.	Places.	Remarks.
Iyo	Uma-gōri	Betsu-shi do-zan ..	Old and very large copper mine (the largest in Japan); copper pyrites associated with iron pyrites and gray copper ore; seems to be the most profitable copper mine of Japan.
Tosa	Hata-gōri	Kami-tanokuchi-mura.	
	Agawa-gōri	Yasui-mura.	
Chikugo	Kosuma-gōri	Yokoyama-mura.	
Bungo	Ono-gōri	Ohira-ko-san	Copper pyrites associated with tin ore, iron pyrites and arsenical pyrites.
		Kiura-ko-san	
	?	Kozaki	Poor veins of chalcopyrite with iron pyrites and mispickel.
	Kunisaki-gōri	Oshiro-mura	
Higo	Mashiki-gōri	Ashikita, and several other places.	Copper pyrites. The veins seem to be poor and the copper mines not in a flourishing state.
	Kami-mashiki-gōri	do	
	Shimo-mashiki-gōri	do	
Hiuga	Takachiho	Kuraŏka-mura and several other places.	Small, old, and, as it seems, not profitable mines.
Satsuma	Kawabe-gōri	Takarashima.	
		Mekami--yama.	
		Sagiga-saki.	

[41] This list shews at how many different places copper has already been found in Japan. It will not astonish us that copper and also gold and silver have been exported from this country on a large scale since the Japanese first came into contact with Europeans in about 1545. These large quantities of metal must have been found and smelted in Japan, because no Japanese history speaks of the import of these metals.[5] We have endeavoured to estimate the quantity exported out of this country

[5] With the exception of some silver ducats imported in 1769 by the Dutch, and some very old copper cash imported in ancient times by the Chinese.

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by examining the journals kept by the old Dutch factory at Desima. Although we cannot guarantee the following numbers to be exactly correct, still we can vouch for their being tolerably so.

PERIOD.	THOUSANDS OF PICULS ANNUALLY.	TOTAL AMOUNT IN PICULS EXPORTED (MEDIUMS)
1609-1692	25 à 30	2,310,000
1693-1713	30 à 31	640,500
1714-1720	15	105,000
1721-1742	10	220,000
1743-1751	6	54,000
1752-1763	11	132,000
1764-1789	8	208,000
1790-1796	5	35,000
1796-1819	8	184,000
1820-1831	11	132,000
1832-1858	7	189,000
Total in this period of 249 years		4,209,500 piculs.

[42] Mr. Gowland in his very satisfactory report (l.c.) of 1874 states, that as a rule Japanese copper is exceedingly free from the presence of injurious metals. Out of thirty-eight analyses of different samples of Japanese copper he made the following summary: "Sulphur, "silver, lead and iron were present in small and varying proportions, in "every case; in one specimen however an abnormal quantity of lead "existed. The whole of the samples were remarkably free from the "specially injurious metals, antimony and arsenic, antimony being pre-"sent in only one specimen, and then only in faint traces, while the "maximum amount of arsenic only reached 0.057 %, and in 31 cases it "was either absent altogether, or the merest traces only were found."

In the rectangular cake copper (dry copper *ma-buki-do*), Mr. Gowland found, as we did, an excess of cuprous oxide.

We only analysed three different kinds of bar-copper, and found in each of them traces of arsenic, besides some sulphur and iron.

The average composition of Japanese crude copper, made up out of the numerous analyses by Mr. Gowland (l. c.), may be stated as follows:

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Copper	98.940
Lead	traces.
Sulphur	0.947
Iron	0.101
Silver	traces.
Arsenic	traces.
Antimony	absent.
	99.988

We must advise the commercial community to make a careful distinction between the different kinds of Japanese copper, there being some of a very impure character, as for instance the copper plate-roofs of Japanese temples, which are very impure and mixed with lead. Bar-copper (Sao-buki-do) is the purest of all Japanese coppers.

The Portuguese from 1550-1639 exported chiefly gold [43] and silver. The total amount exported during this period of 89 years we estimate to have been at least £59½ millions sterling. Meylan,[6] who has written an excellent account of the ancient trade of Japan, estimates the yearly average to have been about £660,000 sterling; whilst Kaempfer[7] and other writers speak of some years in which the Portuguese exported as much as £2½ millions sterling annually.

The Dutch exported in the first years of their trade silver and copper. The foregoing table shows the copper export during the period 1609-1858. It will be seen that after the year 1718 a considerable decline in the copper trade took place. From 1640-1671 a considerable quantity of gold (oban and koban) was also exported by the Dutch. In the year 1671 the export of silver was prohibited by the Japanese Government.

The Chinese exported probably a nearly equal quantity of copper during this period. It is impossible for us to give an exact account of this trade. We must accept the statements of many former chiefs

[6] Meylan. Handel der Europezen op Japan. Trade of the Europeans in Japan, 1833.

[7] History of Japan. Book II. Cap. III.

Valentyn. Oud, en nieuw O. Indie; Beschryving van Japan V. deel II. afd.

Siebold Nippon Archiv VI.

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of Desima and those of Von Siebold, who tells us (1°) that in 1790 the the export of copper by the Chinese amounted to 18,000 piculs, at which time the Dutch could only obtain 5,000 piculs as back-freight; and (2°) that the average amount per annum exported by the Chinese may be estimated at 15,000 piculs. According to this estimate the total amount of copper exported by the Chinese was not less than 3,735,000 piculs. We think, however, the estimate of Von Siebold to be too low. The Superintendent of the Government Copper Refinery at Osaka told Von Siebold[8] that the yearly production of copper about the period 1830 amounted to 50 to 60 thousand piculs. We were also informed by Sumitomo, the proprietor of the largest copper works in [44] Osaka, that in the neighbourhood of that place alone more than 40 thousand piculs of copper were smelted yearly. According to the government statistics there were exported in 1878 25,000 piculs of copper, whilst the medium yearly produce of copper in Japan during 1874-1878 is set down as 7,679,619 lbs. having an estimated value of 1,305,534 yen. It seems thus that the quantity of copper produced yearly remains pretty stationary, and that nowadays, as in Siebold's time, about 60 thousand piculs copper are produced annually.

JAPANESE BRONZES.

The Japanese name for bronze is 唐金 *Kara-kane* (Chinese metal) and shows that the art of smelting this alloy was originally taken from the Chinese. Japanese bronzes contain copper and tin as the chief constituents, together with a little lead, zinc and iron.

Although Chinese bronze must have been known in Japan for a very long time, still the art of casting bronze guns and muskets must undoubtedly have been learned by the Japanese from the first Europeans with whom they came in contact (the Portuguese, English and Dutch).

The Japanese historians[9] without exception, give to the "Nan Ban Jin" (Europeans) the honour of inventing fire-arms and contradict the common report in Europe that the Chinese were the first to discover gunpowder and fire-arms. The prince of Bungo was the first one in

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[8] Nippon Archiv, VI., page 68.

[9] Tsu-kai bu-yo-ben-riyo. Manual of military art, etc.

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Japan who possessed fire-arms, a few being presented to him by the crew of a European (Portuguese?) vessel, which happened to come to Funai in his province. In the year 1543 the manufacture of gunpowder and the handling of fire-arms was taught to the Japanese by the crew of a Portuguese ship which happened to anchor near the island of Tanegashima. It is probable that this is the same vessel in which Ferdinand Mendez Pinto came to Japan. The Japanese, however, speak in their history of two Portuguese named Mura-shuku-sha and Krista Mota[10] as the persons who first brought in the knowledge of gunpowder and fire-arms. There still exists among the Japanese a kind of fire-arm called "Tanegashima."

The clever pilot William Adams, who came to Japan in 1600 as first mate of the Dutch ship *de Liefde*, and who [45] died in 1621 after having lived 21 years in this country, got an appointment as ship-builder and gunnery-instructor from the Shogun's Government. Later on (from 1643-50) a Dutchman, W. Byleveld by name, and three Dutch marines (A. P. Spelt, H. Van Elsfort and J. Scholten) lived in Yedo, and instructed the Japanese in the manufacture and manipulation of guns, muskets and gunpowder. The following table gives the result of our analyses of four different gun-bronzes. These old guns were admirably cast, and shew the cleverness of the Japanese in being able to found such large pieces of metal without the aid of western machinery.

Most of the large bronze guns which were placed in former times on the fortifications of many harbours in order to keep away the feared foreigners, have now been removed and sold as old bronze to European merchants, so that this metal will now very likely have been metamorphosed into different kinds of western machinery and steam engines. New European steel-made guns have taken the place of the large bronze guns in Japan.

The constitution of old bronze guns cast in Japan after the year 1600 is as follows:—

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[10] In Siebold's Atlas will be found a copy of a Japanese print where these two Portuguese Diego Zeimoto and Chistoval Borallo are represented with their muskets.

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Ingredient per cent.	Large gun Battery.	Long and small gun.	Very long gun.	Large gun.
Copper	87.8	88.8	88.7	88.9
Tin	9.8	7.2	7.1	7.1
Zinc	1.5	—	—	—
Lead	1.4	2.6	2.7	2.8
Iron	Traces.	1.4	1.5	1.7

The amount of iron is very probably due to impure copper. Lead and zinc are perhaps added purposely, although it is possible that the tin used for smelting contained these metals, as Chinese and Japanese tin is often impure.

The Japanese bronze does not differ much from the old European bronze, as can be seen by the following table, [46] representing the constitution of some European kinds of gun-metal.

	Copper	*Tin.*
Old French guns	90.1	9.9
" Prussian guns	90.9	9.1
" English guns	91.74	8.26

The slight difference proves that the formula for casting Japanese guns has been given by the above named Europeans. A French chemist, Roux, has analysed Chinese gun metal and found.

	Copper.	Tin.	Zinc.	Iron.	Lead.
Old China gun	71.2	—	27.4	1.4	—
Old mortar from Cochin China	88.1	8.2	7.1	1.6	—
Old gun from Cochin China	77.2	3.4	5.0	1.2	13.2

It will be remarked that the Japanese gun bronze resembles much more our old western metal than the Chinese alloys.

Another French chemist, M. Morin, published lately also several

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analyses of Chinese bronzes and obtained nearly the same results as M. Roux. (See *Bulletin de la Société Chimique de Paris*, 1874, No. 11, page, 519.)

We have also analysed specimens of old Japanese bronze from vases and ornaments and found:—

	1st.	*2nd.*	*3rd.*	*4th.*
Copper	85.8	88.70	71.00	78.48
Tin	8.9	5.88	5.50	7.18
Lead	4.7	7.80	20.35	13.07
Iron	1.1	0.65	1.84	1.10
Arsenic	traces.	traces.	...	traces.
Zinc	...	1.85	1.84	5.18

The relatively large quantity of lead is perhaps added to promote the malleability and plasticity of the alloy.

JAPANESE BRASS.

Brass (眞鍮 *Shin chiu*) was formerly made in Japan by smelting copper, zinc and zincblossom (a kind of very pure zinc ore imported from China). Ranzan gives the following formula:—

Copper [47]	70
Zinc	50
Zincblossom (Rogan-seki)	48
	168

We have analysed a specimen of yellow Japanese brass and found Iron traces.

Copper	67.1
Zinc	32.9
	100.0

At the present time brass is always obtained by founding only copper with zinc (without zinc ore.) Probably there are in Japan several varieties of brass with variable quantities of copper and zinc. In 1873 there were rumours current in the mercantile community that the old Japanese *zeni* (cash) contained a considerable quantity of gold. At the request of a mercantile firm we analysed two kinds of cash, one being

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150 and the other 100 years old. We did not find a trace of gold, but on the contrary a considerable amount of impurities in them, consisting of sand and clay.

The oldest *zeni* contained:—

Copper	82.0
Lead	7.0
Tin	5.6
Zinc	4.1
Iron	0.2
Sand, etc.	1.1
	100.0

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DESCRIPTION OF A TRIP TO NIIGATA, ALONG THE SHINSHIU-ROAD AND BACK BY THE MIKUNI PASS.

By J. A. Lindo, Esq.

[*Read before the Asiatic Society of Japan, 18th November, 1874.*]

[48] From Yedo, Niigata may be reached by two different roads, both of which follow for the first part the Nakasendô, the one as far as Takasaki, and the other up to Oiwake, which is 12 ri farther on. From Takasaki the first road branches off N. over the Mikuni pass to Niigata. At Oiwake the Nakasendô itself bends to the S. while the Hokkokukaidô, as it is called, runs W. to the borders of the province of Echigo, and so reaches Niigata.

Both roads running together up to Takasaki, a short description of the Nakasendô may first be given.

The annexed itinerary gives the distances of the several villages between Yedo and Takasaki, between which a *daily coach* is running, leaving each place in summer time at 5 a.m. arriving at 7 p.m. at the other, so that the trip is made in 14 hours.

[49] Province of Musashi.

Yedo to Warabi	4 *ri*	18 *chô*.
Urawa	2 "	
Ômiya	1 "	
Tenjinbashi	1 "	4 *chô*.
Ageo	1 "	4 "
Okegawa	1 "	

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Kônosu	1 " 80 *chô.*
Kumagai	4 " 18 "
Fukaya	2 " 85 "
Yedo to Fukaya	20 *ri* 1 *chô.*

PROVINCE OF MUSASHI.

Honjô	2 *ri* 31 *chô.*

PROVINCE OF JÔSHIU.

Shimmachi	2 *ri* 7 *chô.*
Kuragano	1 " 10 "
Takasaki	1 " 19 "
Total distance between Yedo and Takasaki	27 *ri* 32 *chô.*

The Nakasendô between Yedo and Taksaki is in a tolerably good condition; I estimate the breadth to vary between 10 and 40 feet; except near Todamura no very steep inclines occur, and without great expense at least this part of it could be easily made a really fine road. The chief difficulty would be as regards some of the villages where the road has in many cases a minimum breadth; but outside the villages it extends through flat arable land, for the greatest part cultivated with corn, rape seed, beans, etc. (while paddy fields are rare), and it would certainly be no matter of great difficulty to appropriate here and there a strip of these fields along the existing road, and to widen it in this way.

At Todamura the Todagawa is passed by means of a ferry boat. The Todagawa is the same river as the Sumidagawa; like many other rivers in Japan, its name is often changed; higher up it is called Arakawa, about 2 *ri* lower down from the village of Sumida to Riôgokubashi, [50] Sumidagawa, and below Riôgokubashi it ultimately becomes Ôgawa. When I passed the Todagawa in May, 1878, I estimated the breadth on the water line to be about 50 metres (165 feet); the velocity of the current being small, so that the discharge must have been small too. But after the rainfall of September and October of last year, I

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heard that the river had swollen to an enormous degree, and had overflowed its banks, part of the Nakasendô being inundated, and the passage being for some days almost impossible.

From Sakato to Kumagai the Nakasendô runs along the top of the left embankment of the Aragawa. Between this embankment and the river-bed is an extended piece of arable land, and the river-bed is only seen at a distance. It has here already quite the character of a Japanese upper-river, in which may be seen more gravel and stones than water, and the piers, bank-defences and other river-works are all constructed by means of material extracted from the river, while on the lower parts of the river they consist entirely of wood.

Between Fukaya and Honjô the Nakasendô is sufficiently wide, but there are some steep inclines; here the scenery becomes picturesque and full of variation, exhibiting arable land with farms covered with flowers, the latter even extending to the top of the houses, which were overgrown with a blooming kind of hyacinth; and Buddha-temples calmly situated at a little distance from the road at the end of a neatly paved alley; groves of *matsu* and bamboo and those magnificent *sugi* trees, of which often two, three, or even four, grown together at the lower part of their trunks, are the principal features of this part of the road.

Honjô, like Kônosu and Fukaya, is a very large place, but had been burnt down for a great part a month or so before my arrival. Here is a very prettily situated temple on the top of a hill, from which there is a splendid view over part of the Tonegawa valley, the nearest village on the Tonegawa being Tanakamura, at 1 *ri* distance. Along the foot of the hill a brook is running, in which [51] naked men and children were occupied in drawing up, by means of small baskets, a small kind of fish, called *funa*, which is boiled and dried and sometimes used as medicine, though it is also used as common food.

A little before arriving at Shimmachi, from which place a road branches off to Tomioka, which has a large silk manufactory under French superintendence, the Kannagawa bed is passed. This river is the boundary between the provinces of Musashi and Jôshiu. Such remarkable points as this seem to impress the people: at least both times I passed here, my *jinrikisha* coolie turned round to communicate this fact to me. The Kannagawa falls to the right into the Karasu-

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gawa, which in its turn falls into the Tonegawa at Goriô. Not a drop of water was to be seen in the Kannagawa; the river looked like a gravel desert in the midst of the cultivated lands; one or two small rustic bridges were laid across the now dry channels.

At Iwabana, the Karasugawa itself is passed by means of a boat-bridge; as the river is very shallow, the boats are moored to baskets loaded with stones, lying at the bottom of the river. The Karasugawa is navigable here only for very small boats, being, as has already been said, full of waterfalls and very shallow. At Iwabana is a large prison, situated on the river, the left bank of which rises here almost perpendicularly to a height of about 80 feet above the water level.

From Iwabana the Nakasendô, not much broader than a footpath, winds through arable lands until Kuragano is reached—a place situated on the right bank of the Karasugawa, a little above the mouth of the Kaburakawa, on which Tomioka lies. From Kuragano a road branches off to the right to Nikkô. Between Kuragano and Takasaki the Nakasendô is in a very good condition, being about 30 feet wide, well-drained and shaded by a row of *matsu* trees on each side. It has here quite the aspect of a European road, with richly cultivated arable land on both sides, bordered by low hills in the distance.

Takasaki is a large town, 68 miles from Tôkiô, with a gloomy looking Daimiô's castle, and with a flourishing trade. It lies on the confluence of the Karasugawa and the Usuigawa. Both these rivers proceed from the mountains in the neighbourhood of Sakamoto.

As mentioned before, from Takasaki one road branches off in a northerly direction to Niigata, while another leading to the same place still follows the Nakasendô to Oiwake. I shall first describe this latter road, known at Niigata by the general name of Shinshiu Kaidô, in consequence of its passing through the Province of Shinano or Shinshiu.

The following is an itinerary of the principal places which lie on this road.

Yedo to	Takasaki	27 *ri* 32 *chô*.
Province of Jôshiu	Annaka	2 " 24 "
	Matsuido	1 "
	Sakamoto	2 " 19 "

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Province of Shinano	Karuizawa	2 "	35 "
	Kutsukake	1 "	5 "
	Oiwake	1 "	
	Komoro	2 "	18 "
	Tanakamura	2 "	18 "
	Uyeda	2 "	18 "
	Sakaki	3 "	
	Yashiro	3 "	
	Nagano	4 "	
	Aramachi	1 "	
	Mure	3 "	
	Furuma	2 "	
	Nojiri	1 "	
Province of Echigo	Sekigawa	1 "	
	Sekiyama	3 "	
	Takata	5 "	
	Kasugashinden	2 "	
	Kuroi	1 "	
	Katamachi	2 "	
	Kakizaki	2 "	
	Hassaki	1 "	18 "
	Ômigawa	2 "	
	Kujiranami	1 "	
	Kasiwazaki	1 "	
	Miyagawa	3 "	8 "
	Shiiya	0 "	24 "
	Ishiji	2 "	
	Idzumosake	1 "	
	Yamada	2 "	
	Teradomari	2 "	
	Niigata (directly along the coast) from Teradomari	10 "	

Total distance between Yedo and Niigata, along the Shinshiu Road ..... 106 *ri* 8 *chô*.

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After passing the Karasugawa from the left to the right bank at Takasaki, the left bank of the Usuigawa is followed up to Sakamoto. The Usuigawa is not navigable so high up; its bed being covered with stones between which the rapid stream works its way, now through one, then through different channels, over which rustic bridges are built. The scenery becomes more and more beautiful, and after having passed Matsuida, we are soon in the mountains. The Nakasendô is practicable to this point for *jinrikisha*, with two good coolies to draw them up the steep inclines. For wagons drawn by horses this part of the Nakasendô is impracticable; such wagons could not advance further than Takasaki.

The valley of the Usuigawa becomes with every step, as it were, narrower and more picturesque; the mountain slopes on both sides of the river are covered in early summer with a carpet of blooming *fuji* flowers, which form, with the dark green of the *sugi* trees, the rapidly running streamlets, falling from the mountain slopes and crossing the road, the winding Nakasendô itself, and the charmingly situated mountain villages everywhere at a distance, a really fine picture—drawing forth some admiring remarks even from my interpreter.

The Japanese mountain villages have, at least in the districts which I have seen, a quite different aspect from those in the plains. They consist chiefly of a row of houses on each side of the road, thus forming a street which constitutes the whole village. The houses are notable by their wooden roofs, on which blocks of stone are laid, and their poor and dirty appearance.

About 2½ *ri* from Matsuida the Usuigawa is crossed over a bridge, and here a straight road with 160 houses [54] placed on both sides of it, enclosed in a narrow valley, forms the village of Sakamoto.

The next part of the Nakasendô is very interesting; it ascends now rapidly, *jinrikisha* are out of the question, and if one does not wish to be tortured in a *kago*, nothing remains but to walk or to go on horseback. The scenery is fine, particularly in May, when *fuji* and azaleas are in full flower; at every step the view of the surrounding mountains and valleys changes, and especially that of the valley in which Sakamoto lies is surprising. The highest point is reached at Tôgemachi, about 2 *ri* from Sakamoto. I estimate the height of this point, according to very roughly made barometric observations, at about

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1,000 metres (3,300 feet) above the sea level. Here is the border between the provinces of Jôshiu and Shinano, and at the same time the separation of the lands which drain into the Tonegawa. Pack-horses and female pilgrims form the bulk of the travellers on this part of the road.

From Tôgemachi the road descends rapidly to Karuizawa, a poor village on the extended plain surrounded by mountains, on which the volcano of Asama yama is situated. Over this plain the road is more interesting than beautiful; the place is covered with large blocks of lava, thrown up by Asama yama, and has a very desolate aspect. Only the western, very smoothly ascending slope of Asama yama is very nice to look at, being covered here by a wood of *matsu* trees: the large and isolated mountain produces the impression of Gulliver with the Lilliputians. Smoke is always issuing from the crater of Asama yama.

At Oiwake, situated at the foot of the mountain, the Niigata road leaves the Nakasendô; while the latter descends, the Niigata-road (called Hokkokukaidô), follows the table-land along the foot of Asama yama, and is practicable here for *jinrikisha*. The average breadth will be about 12 feet; some steep inclines are met with, but the way is generally well shaded; in the valleys rice is cultivated. 2½ *ri* from Oiwake is Komoro, a large town situated on the Chikumagawa; it was formerly the [55] residence of a *daimiô*, whose castle is now in a dilapidated condition. From here the road follows the right bank of the Chikumagawa down to Yashiro. The Chikumagawa is the same river as the Shinanogawa, which flows at Niigata into the Japan Sea. I believe the name is changed between the villages of Hakura and Miyabara, where it enters the province of Echigo; but I cannot say this for a certainty; in the course of this paper some further data about the river will be given.

Generally speaking, the road between Komoro and Tanaka is in a bad condition, rugged and narrow, and in some parts with steep inclines and sharp curves; from Tanaka, Uyeda can be reached by *jinrikisha*. Uyeda is the largest place which I had until now passed; it has an important trade, particularly in silk, both raw and manufactured. Numerous shops with European provisions are to be found in this ex-*daimiô's* seat, and a European-modelled garrison patrols the streets of the beautifully situated town.

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The general features of the Chikumagawa valley between Komoro and Yashiro are a picturesque scenery, the valley alternately widening and narrowing, while the broad river-bed in the depth is covered with white boulders, over which the blue water rapidly flows and forms numerous falls; the mountains on both sides covered with flowers and trees. (Every now and then a dirty village without a single comfortable looking house.) At a little distance from the left bank rises the Boshayamá, a haunted mountain, with which the following "romantic" story, as my interpreter styled it, is connected. "In former times during a "war between two princes, the nurse of the infant son of one of them "took refuge in the mountains with the child and kept it concealed "there from the rapacity of the conqueror. At length both nurse and "child died, and nowadays during the night, the nurse's voice may at "times be heard among the mountains, calling for the lost child!"

If all Japanese "romantic" stories were as romantic as [56] this one, the Japanese might really be called a naïvely innocent people.

After crossing the Chikumagawa from its right to its left bank, the Hokkokukaidô follows the left bank at a much greater distance, along the mountains, as far as Mure, where it separates from the Chikumagawa valley. At Tambajima the Saigawa (left tributary to the Chikumagawa) is crossed by a bridge of boats. Every boat of this bridge is moored to a heavy iron chain of Japanese manufacture, reaching from one bank of the river to the other. At both sides it runs over a windlass by which it may be stretched if the water in the river rises, while boats may be added when the river thereby considerably increases in breadth. For the rest, all these rivers have the same characteristics; they look like large stone fields, of which in summer time only a comparatively small portion serves for the flowing off of the water. But the Saigawa discharged even now a considerable volume, though the river was at a low level. Judging from the Japanese maps, it seems to be the principal tributary of the Shinanogawa.

One *ri* from the place where the Saigawa is thus passed, lies Nagano, a large town with the renowned Buddha temple called Zenkôji, situated at the end of the long, broad and regularly ascending street, by which the place is entered. This is one of the finest temples I had yet seen; it is well kept, and is admired for its beautiful wood carvings.

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The site of the temple is much like Asakusa at Yedo. It is surrounded by a great many *ishidôrô* (stone lanterns) and by some very neat priestly dwellings with well arranged gardens.

In the mountains, at a distance of about 1 *ri* from Nagano, petroleum wells are found; they have only been worked for two years. The wells are about 120 to 150 feet in depth, and are entirely under Japanese management. The petroleum is twice purified, once on the spot and afterwards in the town: it is by no means as white as the American oil, but the Japanese maintain that the light is splendid, which assertion, when the light is compared with that of their *andon*, may well be true.

At Mure the road branches off in a W. direction, thus leaving the Chikumagawa Valley, and now runs to Furuma, from whence it bends N. to Sekigawa, the frontier-place of Echigo. The prettiest spot on this part of the road is Nojiri, a place situated on the Fuyôkô lake, which is surrounded by low hills covered with thickets. What rendered this beautiful spot all the more impressive for the time at least, was a heavy thunder-storm which overtook us here, and which formed a curious contrast with the snow-covered mountain tops we had been sighting since leaving Uyeda, in a N. W. direction.

The small Ichigawa river forms here the border between Shinano and Echigo; it is here but a mountain-stream rushing forth with great velocity over rocks. Between its steep and densely grown high borders, it is crossed by a rustic bridge of singular construction.

Between Sekigawa and Sekiyama (3 *ri*) the road is entirely shut in by mountains, and when it rains heavily, it has sometimes more the appearance of a stream than of a road, with not even a footpath to be seen. It passes zigzag up hill and down hill, with very steep inclines, and is one of the most charming parts of the road between Yedo and Niigata. The slopes of the high hills are grown all over with azaleas and other flowering shrubs—one valley leads over the top of the hills into another, and when looking upwards from the bottom of those beautiful valleys with the blue and white, thundering and foaming streams, all hastening to the Sekigawa, one cannot help being moved deeply.

After Sekiyama the country becomes much flatter, but the road remains awfully bad, especially between the villages of Matsusaki (2 *ri* from Sekiyama) and Arai (1 *ri* before reaching Takata), where it is very

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rugged and full of holes. At Arai the road descends into the valley of the Arakawa, a left tributary of the Sekigawa; here the road becomes much better, smoother and shaded by a row of *matsu* trees on both sides.

[58] Takata is the first place which is reached in Echigo; this extensive town is situated on the left bank of the Sekigawa, a little way down from the mouth of the Arakawa, which was crossed from its right to its left bank by a wooden bridge. This Arakawa is about 100 feet wide; there was a rapid stream running and the river was impracticable for navigation. Takata consists properly of one street, which bends itself repeatedly at right angles, while between two bendings a straight part stretches as it were to the horizon. All the houses are equally low and built in the same manner, with a verandah or covered way supported by wooden columns placed at nearly equal distances from each other. The upper story of the houses projects in many cases over the ground-floor till in a plane with the columns. These verandahs serve to keep a free passage during the winter, when the street is sometimes buried under 5 or 6 feet of snow. But they give a very monotonous appearance to the dull and silent town. They told me here the place contains 5,000 houses. The principal business of the people is cotton-weaving, and the town abounds with drapers' shops.

Between Nagano and Takata no bamboo is to be seen; at Takata there is a very small kind, which seems to be the case throughout Echigo. On this part of the road, too, all pack-horses we saw were mares, which is certainly an exception to the general rule; bulls were also much used for transport purposes.

At Takata the road passes to the right bank of the Sekigawa; the river was much swollen by the rainfall of the previous day; a right tributary of the Sekigawa is crossed at Kasuga-shinden, and about 1 *ri* downward the Sekigawa flows into the Japan Sea near Imamachi. Kasuga-shinden was reached by *jinrikisha*, the road between Takata and Kasuga-shinden being tolerably good. To the left there are large paddy-fields; to the right the way is bordered by farms, separated from the road by high hedges and broad ditches. From the latter the water is carried off at several places across the road to irrigate the rice fields; and as only a plank or the trunk of a tree [59] is laid over these road crossings for pedestrians, the *jinrikisha* had to be carried across.

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At Kasuga-shinden we parted with *jinrikisha*, not to see them again till Shibukawa (8 ri from Takasaki) on our way home, excepting four or five broken ones at Niigata.

From Kasuga-shinden the road goes for some distance along the right bank of the Sekigawa to Kuroi, situated on the sea-shore near the mouth of that river, opposite Imamachi. From Kuroi we followed the sea shore up to Teradomari; on those parts where is a beach there is no road properly speaking, but the strand is used as such, and one has the difficult choice of either dragging oneself through the thick dusty sand in the burning sun, or of having one's limbs tortured in a *kago*. Fortunately there happened a circumstance which left me no choice at all, as not only all our luggage but also the *kago* had to be carried by women and even young girls, the male population of the villages being almost without exception fishermen; and though it was not perhaps directly to their pecuniary advantage, I had to refuse in most cases the help of a *kago* and to walk my way. One *kago* was carried by three, and another by four women at once. At longer or shorter distances the beach is bordered to the right by hills, sometimes grown with shrubs and dark pine-trees and consisting of hard clay; at other places there were downs of sand, grown with grass. Sometimes the hills border the sea, leaving no beach between, so that the road passes over them. This is first the case between Kuroi and Kakizaki, where the hills are very low and for the greater part built, on both sides, with houses and farms. Between Kakizaki and Hassaki the beach forms the road, and it was at Kakizaki that for the first time luggage and *kago* were borne by women. The villages between Kuroi and Hassaki are all poor in appearance and dirty. Hassaki is situated at the foot of tolerably high hills and close to the sea; from here the road passes over the hills to Kujiranami; the hills are grown with shrubs and flowers and cultivated, the higher parts with corn, the [60] lower with rice, while the road itself is not much more than a footpath, winding with steep inclines through the hills. Every now and then a beautiful view is to be had over the blue sea, with the island of Sado about 18 *ri* distant.

Between Kujiranami and Kashiwazaki, a large town, the road lies at some distance from the sea and through a somewhat flat district.

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Here we met with several nicely dressed persons and whole families, who were going to occupy the different tea-houses along the road in the villages we had passed, in order to wait upon the "squire of the village," who had been on a travelling tour and was now expected back. What was meant by the "squire of the village" I could not make out.

Kashiwazaki being a town, and, as it seems, a prosperous one, coolies could here be had to carry our luggage and *kago*. Between Kashiwazaki and Shiiya we followed the beach, which is here very broad and bordered to the right by barren sandy hills; the sand of which the beach and hills consist is of a dark grey colour; the beach slopes in a steep incline to the sea; there is here under ordinary circumstances a difference of seven English inches between ebb and flood tide, according to daily observations, which are made also at Niigata.

Shiiya is situated very much like Hassaki, i.e. close to the sea and at the foot of a hill. I should not advise any one who is going to make this tour to spend a night at Shiiya, at least if he wants to sleep. It was perfectly impossible for me to shut my eyes for the barking and howling during the whole night of these antediluvian Japanese dogs, which seemed to be aware that a company of strange people had entered their village: at least this is how my host explained the terrible noise they made.

From Shiiya to Teradomari the road runs almost without exception over the beach, and through some well-to-do looking places, of which Idzumosaki, the principal one, is 1 *ri* in length and is situated close to the sea. Teradomari is also a long prosperous town with some very good hotels.

[61] As I was with some Government officials we were waited upon at the entrance of every place by some of the local *yakunin*, who walked before us through the village, or led us to a tea-house, according to circumstances. It was interesting to note the different degrees of respect with which we were waited upon in the various localities through which we travelled. In general the politeness and submission increased with the distance from Yedo, yet there was sometimes a marked difference between two succeeding places. Moreover it may be considered as a rule that in the large villages and towns much less notice

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was taken of us than in the small villages: in some of the towns, in fact, there was nobody to receive us, though we were going to take our tiffin or to stop for the night (which was always notified the previous day), so that we had to look and ask ourselves for our hotel. But along the beach there was the same servile submission wherever we passed.

The most ridiculous reception we met with was at Teradomari, at which place we were waited upon by six *yakunin*, each armed with a small sword, portable ink-pot and pencil, pipe and tobacco-pouch stuck in his girdle and a small stick his hand. One of them walked before us, the others following. The foremost cleared, as it were, the street with his stick; children were taken up and put softly down into the neighbouring houses, the inhabitants standing in front of their houses were ordered to kneel down; by the incessant cry of "*m'ma, m'ma,*" horse-leaders were ordered to take care of their horses, which were as quiet as possible, but, frightened by the noise of the *yakunin*, began to kick and trample; and passers-by were ordered to take off their hats, at the cry "*kasa, kasa.*" As the village was very long, at last nobody was to be seen, and the street appeared as dull as if it had died out; but the most curious incident of the day was the furious look and the cursing "*chiku-shô!*" which the *yakunin* cast upon a cock, which dared to crow at the very moment we passed!

From Teradomari the road follows the beach to Niigata, but my way led inwards to the Shinanogawa through the cutting which the Japanese were in the act of making between the sea and that river. That the Japanese are not afraid of making large ground cuttings, the neighbourhood of Yokohama will show, but this Teradomari cut is the most remarkable one I have seen. It was originally undertaken to draw off part of the Shinanogawa water from Okodzu (on the river) directly to the sea. The cutting has a length of more than five miles, of which about nearly two are in the hills; the highest hill to be cut through is 260 feet over the intruded water level. Generally the ground consisted of layers of scale clay, in the beginning very hard, but becoming soft after having been exposed for some time to the air. In many cases the layers of clay are separated by thin layers of sand. The works have since been stopped, as too much money would be necessary to complete them

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in such a manner as to make the canal prove really useful to the river, which would only be the case at very high floods; in other cases it would do more harm than good to the river.

Okodzu, the river-terminus of the canal, lies 15¼ *ri* from the mouth of the river at Niigata; it is a small village, but has lately somewhat improved by the cutting of the canal.

Between Okodzu and Niigata the Shinanogawa is enclosed between good embankments, which, with the exception of two or three places, leave no space between them and the river. At Okodzu a small river, called Nishi kawa, separates from the Shinanogawa to re-unite with it at Heijima (about 2 *ri* above Niigata). This river was dug in olden times for irrigation purposes for the lands W. of the Shinanogawa. At Dôkin (2 *ri* below Okodzu) another and much more considerable part of the water separates from the Shinanogawa; the river separating here is called Naka-no-kuchi kawa, and reunites with the Shinano at Ôno (3 *ri* above Niigata). I think at low water this river even draws a greater quantity of water from the Shinanogawa than remains [68] flowing through the latter, the Naka-no-kuchi being shorter than the Shinano between the points of separation and re-uniting, the water has a greater velocity in the former than in the latter, and the river being moreover deeper, most of the down-going boats go by the Naka-no-kuchi.

Formerly this river separated from the Shinanogawa at Ôshima, where the two rivers are now separated from each other only by an embankment; the Naka-no-kuchi was then only a small brook, even of less importance than the present Nishi kawa; but about 150 years ago the part between Dôkin and Ôshima was dug and the existing part widened to its present state, probably in consequence of inundations along the Shinanogawa, but I could not clear up this point. In those times, too, the Shinanogawa flowed through the now dry bed of the Furu-Shinano, as it is called at present, between Ôshima and Idoba, over a length of about 9,000 feet; but by-and-by it changed its course by breaking in the right bank until it formed the sharp double-curve which is now to be found between those two places.

The minimum depth of the Shinanogawa may be stated to be 8 or 8½ feet at low water; but this minimum only exists in some places, while in general the depth is much greater, and I think that by the

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construction of well arranged works the river might be so far improved as to allow ships of 6 feet draft to come up as far as Okodzu, and perhaps to the extensive town of Nagaoka (6 *ri* above Okodzu).

Between Okodzu and Niigata the course of the river is generally speaking parallel to the sea coast at about 5 or 6 *ri* distance from it. This comparatively narrow strip of land between the river and the hills along the sea coast is irrigated by the Nishi kawa and the Naka-no-kuchi kawa, whereas at this side there are no feeders of the Shinano-gawa. There are many of them at the right side of the river, all proceeding from the hills, which are at some distance from the right bank. The principal of these confluents are:—1, The Imamachikawa, also called Kariyada-kawa, coming from Nagaoka, length about 8 *ri*, [64] mouth at Ozaki; 2, the Igarashikawa, length about 8 *ri*, mouth at Sanjô; it discharges a good quantity of water; 3, the Kamo kawa, coming from Takemura over a length of 4 *ri*, mouth at Kamo-shinden; 4, the Ko Aganogawa, connecting the Aganogawa with the Shinano mouth at Sakayamachi.

Owing to these additions the discharge of the Shinanogawa varies naturally between the points of confluence with the different tributaries. The following itinerary may prove interesting. To facilitate comparisons I have added the corresponding figures for the Rhine at the Netherlands frontiers:—

Name of River.	*Discharge per second in cubic feet.* *Low Water.*	*Ordinary Circes.*	*High Water.*
Shinano at Okodzu	9,000	15,000	170,000
Shinano at Niigata	12,000	22,000	200,000
Rhine in Netherlands Frontiers ...	47,000	86,000	396,000

In ordinary circumstances the water level is at Okodzu 38 feet above the sea level; but the water has been known to rise there to 10 feet above this normal state.

The following are the principal places situated on the Shinano between Okodzu and Niigata, beginning from upwards:—

Sanjô (r).....distant 3 *ri* from Okodzu.
Kosudo (r)..... " 5 " Sanjô.

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Sakayamachi (r)	"	2½	"	Kosudo.
Ôno (l)	"	2	"	Sakayamachi.
Niigata (l)	"	3	"	Ôno.

Okodzu to Niigata ..... 15½ *ri* measured along the river. They have in general a poor appearance; the chief industry consists in cotton weaving.

All along the Shinanogawa rice is cultivated; also, though in a lesser degree, corn, beans, *ai* plants (of which a kind of blue pigment is made, used in colouring dresses), cotton, rape-seed, etc. These latter articles are cultivated on higher parts of the ground, bordering the different rivers, while the interjacent lower parts are used as paddy-fields. Probably the higher situation of those parts [65] which immediately border the river embankments, may be accounted for by the absence of embankments in previous years, when all the sediment which the river, when inundating its banks in high flood, carried along, settled nearest to those banks, while the more distant parts only received clear water.

Niigata is situated on the alluvial ground between the river mouth and a range of low sandy hills or downs W. of it; it is regularly built and has a neat appearance; the population, it is said, amounts to 60,000. It is, or was, renowned for its beautiful "tea-houses," and princes from several parts of the country used to visit the place for the sole purpose of amusing themselves. Like Takata, the houses are provided with covered ways or verandahs, which offer an agreeable shelter, in winter against the snow, in summer against the burning sun. The lowest temperature occurs at the end of January or the beginning of February, the thermometer falling to—9° C. (15°⅘ F.); the highest temperature in the shade, during the last days of July, 1873, amounted to 33.5° C. (about 92° F.) When the weather is settled, in summer time during the night a land breeze always blows, while daily at about 9 a.m. a sea breeze sets in. In winter N. and N. W. winds prevail, interrupted by storms from S.W. to N. W., when, as soon as the wind changes to N., fine weather is re-established. I am indebted for the above data to Mr. Weber, who is a resident at Niigata and who makes daily meteorological observations.

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To all appearances Niigata is splendidly situated for trade; the Shinanogawa being almost the only highway for goods-traffic in Echigo, all goods which now go by pack-horses overland from the staple-places of trade, would be sure to go to Niigata if only that place were provided with good harbour accommodation. The bar which now lies before the mouth of the river and which has this year even silted up in such a degree that only 5 feet of water remains in the channel, is the cause that the trade of Niigata has in the last few years almost entirely disappeared; and there can be little doubt that the constructions of suitable piers over the bar would prove, in every respect, a profitable undertaking. Echigo is, as the Japanese say, one of the richest provinces of Japan, boasting indeed of never having suffered by famine, while all other provinces have done so. The export trade from Niigata would certainly become important. The undernamed are the chief productions of this rich province:

Rice, throughout the province, but particularly at Suyebara.

Tea, at Muramachi, Murakami and Midzu.

Ai (blue pigment), at Suyebara.

Copper, at Yahiko, Toishi, Ôtani.

Coal, at Akatani.

Petroleum, at Midzu, Kanaya, Garameki, Koguchi, Tatemura, Yoshimidzu, Aida, Nio-hô-ji, etc.

At Midzu there is a jet of gas issuing from the ground, which is lighted to the general amusement of the visitors to a tea-house, built expressly for the purpose, on the spot.

Silk is cultivated at Goshen and Joshiu.

Hemp, at Chiujo and Manoshiro.

Moreover fish is much exported, of which in the first place, I mention salmon, which abounds in the Shinanogawa between Ôno and Heijima; and wooden clogs are exported by long files of pack-horses.

Besides the common fruits and crops a small kind of apple is grown in Echigo, which, if not plucked before being half-ripe, according to Japanese custom, is very savoury and fragrant.

Following the coast N. E. of Niigata over a length of about 8 *ri* we come to another large river mouth, being that of the Aganokawa. This river, though generally much wider than the Shinano, does not discharge

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such a large volume of water as the latter; a good portion of its water flows from Sawa-umi, situated at about 4 *ri* from the mouth, through the Ko Aganokawa into the Shinano. In former years the Aganokawa had no separate mouth, but flowed through what is now called the Shin kawa, parallel to the [67] coast, to unite with the Shinano opposite Niigata, whence both rivers flowed into the sea by one single mouth. The consequence was, that a much larger volume of water being discharged, the channel over the bar had always a sufficient depth for navigation, being in fact never less than 20 feet, as is reported. But probably in order to prevent inundations along the Aganokawa, it was resolved upon, 170 years ago, to lead its water directly to the sea, by cutting through the hills which border the sea-coast, near the place where the Aganokawa bended to the S. W. to unite with the Shinano.

Echigo was divided between several princes (I believe there were 11 of them); to one of whom belonged the Shinanogawa mouth, while the new Aganokawa mouth came into the possession of another. In order to prevent the trade of Niigata from being transferred to Matsu-ga-saki, which lies at the mouth of the Aganokawa, and of which fear existed (as, owing to the greater velocity of the current at the Aganokawa mouth, its depth would probably be greater than that of the Shinanogawa mouth), a treaty was concluded between the two princes, in which it was stipulated that junks would never be allowed to load or unload at Matsu-ga-saki, and would only be permitted to anchor in the Aganokawa mouth in case of bad weather. A guard-house was built near the coast to watch the interests of Niigata, which was only removed last year, though the junks are not yet officially permitted to trade at Matsu-ga-saki. This place is built against the slope and on the top of the downs; it is a fishing village of very poor and dilapidated appearance, but with its red-painted temple and large *torii*, projecting above the houses on the top of the hill, it is nicely situated, as looked at from the river. The trade along the Aganokawa is by no means so important as that along the Shinano; the river is navigable up to Tsugawa, twelve or thirteen *ri* from its mouth. The part of the river I visited, over a length of 8 *ri* upwards from the mouth, is very shallow, the greatest depth being for a great part not more than 2½ or 3 feet. But as the river is

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very broad, it could surely be made navigable for ships of 5 or 6 feet draught up to the mouth of the Aganokawa, and probably still higher up.

A great portion of the land between the different rivers which run through this part of Echigo, is situated much below the ordinary level of the surrounding rivers, which causes every year great injury to the crops; several lakes or pools of greater or lesser extent lie in this otherwise prosperous district, which might, when properly drained, add a considerable portion of paddy-field to the existing one. Much is to be done here in the course of time; unfortunately money has hitherto been wanting.

A remarkable instance of Japanese engineering skill may be seen at Uchino, which is about 2½ *ri* S. of Niigata, between the Nishi kawa and the sea, which are here close to each other. At this place a considerable area of the lands between the Shinano, Naka-no-kuchi and Nishi kawa, and moreover the extensive lakes which are situated in this part, throw their superfluous water into the sea, the water flowing on through several channels. The Nishi kawa, serving for irrigation, for which purpose from distance to distance a dam is laid through its bed, its level is much higher than that of the lands around it; so that the superfluous water coming from the low lying lands, has to pass underneath the bed of the Nishi kawa. For this purpose a large wooden lock, shut at both sides by self-acting gates, is constructed; there are 5 of these gateways adjoining each other; each of them has a length of 210 feet, and 18 feet in width; 4 of them have a height of 6 feet and one of 4 feet. Perhaps some more will be constructed, as after heavy rain-falls the locks prove not to be sufficiently large.

I believe I have now sketched the chief features of the lower part of the Shinanogawa valley, partly in connection with the commercial interests which adhere to it.

I will now give a description of the home-road which led over the Mikuni pass. I reached Okodzu on foot along the Nishi kawa embankments, passing through a very prosperous district. From Okodzu I went by boat up the [69] Shinanogawa to Nagaoka, which is a distance of nearly 6 *ri*. About half-way between those two places, and situated at 5 or 6 *chô* from the left bank of the river, is Yoita, a very large, but poor-looking

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town, with a beautiful Honjin or Daimiô's hotel. The river between Okodzu and Nagaoka and down Okodzu as far as the separating point of the Naka-no-kuchi, is very broad, but full of sand-banks and islands. About 1 *ri* above Yoita the sand-banks are covered with heavy gravel, which becomes larger and larger, until, before Nagaoka is arrived at, the pieces reach the size of pebble-stones. Nagaoka, 40 miles above Niigata, is the most important place in Echigo; it is renowned for its silk manufactures and is the staple place of trade from Echigo overland to the South. It is not situated directly on the Shinanogawa, but its suburbs extend to it. Formerly it was the seat of a Daimiô, who was Minister to the Taikun; afterwards it became the capital of the Nagaoka-ken, which was united last year with the Niigata-ken. The town is spaciously built with wide streets; about the number of the inhabitants or of the houses I could not get any information, but judging from the extent of the place, it must be considerably greater than that of Niigata.

Here follow the distances of the different places along the Mikuni Road. I have added the height above the sea level, as I determined it by means of an aneroid barometer, but these observations were very roughly made, as I had neither the time nor the means of making them with accuracy; they may serve, however, to give a general idea of this part of the road.

		Height above Sea level in English Feet.
Distance from Niigata to Nagaoka	21 *ri* 18 *chô*.	
Province of Echigo.—Nagaoka	— " — "	80
Miôken	8 " — "	115
Kidzu	2 " — "	280
Aikawa (between)	— " — "	870
Kawaguchi	1 " 18 "	225
Tobisaka hill (between)	— " — "	410
[70] Hori-no-uchi	2 " — "	280
Tochibara-tôge	1 " 18 "	865
Urasa	1 " 8 "	870
Itsuka-machi	1 " 16 "	440

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		Height above Sea level in English Feet.
Muika-machi	1 *ri* 26 *chô*	500
Shiwosawa	— " 30 "	575
Seki	2 " — "	745
Akasaka (between)	— " — "	970
Yuzawa	1 " 16 "	990
Niigata to Yuzawa	40 " 6 "	
Province of Echigo.—Nanatagiri (between)	— " — "	1,425
Shiba-hara-toge (between)	— " — "	1,725
Tea-house at the highest point of this part of the road (between)	— " — "	2,135
Mitsumata	1 " 34 "	1,825
Kaikaki (between)	— " — "	2,000
Naka-no-tôge	1 " 11 "	2,800
Valley between 2 successive hills (between)	— " — "	2,640
Second hill before reaching Futai (between)	1 " — "	3,005
Futai	1 " — "	2,480
Yamadori tea-house	1 " 4 "	2,845
Kiridôshi (between)	— " — "	2,955
Asakai	1 " — "	2,820
Tasuke-goya (hut)	— " 26 "	3,220
Highest point of the Kikuni road (between)	— " — "	3,990
Province of Jôshiu.—Gongen-no-bettô, tea-house	— " 26 "	3,900
Nagai	2 " — "	2,365
Saru-ga-kiô (between	— " — "	1,765
Aimata	1 " 20 "	1,745
Passage of the Nishikawa at Kayabara (between)	— " — "	1,505
[71] Su'kawa	1 " — "	1,660
Fuse	— " 28 "	1,360
Kiri-ga-kubo tôge (between)	— " — "	2,600
Nakayama	2 " 18 "	1,740
	— —	
Niigata to Nakayama	55 *ri* — *chô*.	

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Province of Jôshiu.—Highest point of the road between Nakayama and Yokobori	1 "	— "	2,170	
Yokobori	2 "	18 "	1,045	
Shibukawa	2 "	2 "	750	
Kaneko	3 "	10 "	No observation.	
Takasaki	2 "	18 "		
Takasaki to Yedo	27 "	32 "		
Total distance between Niigata and Yedo along Mikuni Road	94 *ri* 32 *chô*.			

After leaving Nagaoka the road runs over a distance of 8 *ri* through tolerably flat land, the hills enclosing us at a distance from all sides, and the circle narrowing as we advance; afterwards, at Miôken, the road begins to ascend very steeply. Between Nagaoka and Miôken rice and corn are cultivated, and the country has generally a prosperous aspect; but the road is not wider than 10 or 12 feet, excepting some parts where it was in the course of being widened in an entirely unnecessary degree.

From Miôken the Shinanogawa valley is followed along the slopes of the hills, in which the road is cut out having no more width than a foot-path; two or three times, indeed, it passes under the straw penthouse of a coolie's tea-house, the outside uprights of which stand on the edge of the steeply descending mountain slope. The valley is picturesque, the river winding its way in the depth between gravel and pebble-banks, and forming waterfalls everywhere.

[72] At Kidzu, to which place the road ascends with a steep incline (as may be seen in the above-mentioned itinerary), a small tea-house is situated on a beautful spot, where ice-cold water is to be had from a deep well. From here to Kawaguchi is 1½ *ri*, at which place the Uitagawa flows into the Shinano; this Uitagawa is the principal right tributary to the Shinanogawa; it is navigable for small boats up to Muika-machi, at which place it alters its name to Iwonogawa.

Kawaguchi is the first place along this road where silk-industry is again met with, and from here throughout the way till Takasaki, it seems to be the chief traffic of the population.

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After crossing the Uitagawa at a little distance above Kawaguchi by means of a ferry-boat, a steep hill, called Tobisaka is ascended; the slopes of this hill are grown with beautiful *sugi*-trees, and on the top are two very good tea-houses, from whence the road descends to Horinouchi. This is a very prosperous looking and nice place, with broad streets; it is situated at a little distance from the left Uitagawa bank; the valley is principally cultivated with rice; and the narrow road leads through the paddy-fields, and being unshaded and rugged it is rather uncomfortable. But the Japanese were hard at work to improve it, every village having to provide the necessary colies for the part of the road lying within its limits.

From distance to distance parties of from 20 or 30 people were met with, consisting of men, women and girls who were repairing the road by filling up numerous gaps with the clay from the adjoining paddy-fields, burying under it the blocks of stone which now formed part of the rugged road, and widening it to about 9 to 12 feet. Besides the spade, every workman or woman was invariably provided with a fan, which gave them a very quaint aspect; to shelter against the burning sun, instead of being naked, they wore a kind of dress; commonly their legs were enwrapped with cotton, and over their *kimono* they were the ordinary straw rain-coats.

After leaving Horinouchi, over a distance of 1½ *ri* the [78] valley of a streamlet is followed, which is about parallel to the Uitagawa valley, and throws its water into the Uitagawa near Horinouchi, after which the Tochibara-tôge is ascended, the top of which is the boundary between the villages of Horinouchi and Urasa, which latter is situated again in the valley of the Uitagawa, over which a fine view is to be had from the tea-house on the top of the hill. Ascending the hill the Uitagawa is then followed, along an easy, but always ascending, road to Seki. The whole district seems to be prosperous, all the places are neat looking; the principal one being Muika-machi, which may be called a town, and the chief trading place of the district.

On this part of the road women again were engaged to carry our luggage over the mountains. From Seki the Uitagawa, or Iwonogawa, as it is called above Muika-machi, and in which delicious salmon is here found, is followed to Yuzawa, where we leave it to our left after

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having passed over a steep hill, on the top of which the tea-house of Akasaka is situated. We travelled now in company with a long file of cattle, on its way to Yedo.

From Yuzawa the road goes over the mountains, which form the boundary between the lands draining into the Uitagawa and those draining into the Kiyotsugawa, another right tributary to the Shinanogawa; the valley of the Kiyotsugawa is reached at Mitsumata, which is a lovelily situated village. The Kiyotsugawa, enclosed by the densely clothed mountains, rushes here with its clear blue ice-cold water over large blocks of stone, the white foam formed by the numerous waterfalls embellishing the light blue water, and contrasting, as it does, with the dark hue of the old *sugi* trees here bordering the road, gives an almost enchanting aspect to the scenery from the top of the hill, from where the road steeply descends into the valley. In many places the water, turned off from the river and led through the gardens and through several of the houses, and hastening back along the streets on its way to the river, sounds almost like music through the village. I think Mitsumata is one of the most [74] charming spots on the Mikuni road. Leaving Mitsumata the road becomes very bad, great sharp stone points protrude everywhere, and the ascending of the steep inclines is very difficult. Before Futai is reached two high hills have to be crossed, which are separated from each other by a deep valley. The road is here seen over all the length of the valley, winding zig-zag along the slope of the hills through the dense verdure; on the top of the second one a fine view is to be had over the village of Futai, lying nearly 600 feet below. This village consists of one street only, with some 40 houses; it has, like Asakai, quite a modern aspect; for during the last war both places were burnt down by the Tycoon's troops, and are now being slowly rebuilt. From Futai the road gradually ascends to a spot named Kiridôshi, where a narrow passage is cut through two hills, and from where it descends rapidly to the valley of the Yogawa, a left feeder of the Kiyotsu-gawa, the last named river having been crossed at Futai. This Yogawa valley was seen from Futai upwards, but the road remained at a considerable distance from the river, which streams along the foot of the hills over which the road is led, hid under the dense shrubs which cover the slopes, and only heard in the rushing sound of its water.

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Very slowly ascending through the Yogawa valley, through which the road is comparatively so low situated that it is often submerged when after heavy rainfalls the river is in high flood, Asakai is reached where the properly named Mikuni-pass begins, which continues to Nagai, the total length between those places being 8 *ri* 16 *chô*.

At Asakai the road begins to ascend tolerably slowly to Tasukegoya, whence it goes by zig-zag, and with heavy inclines to the small temple of Gongen, which is at the highest point. It is throughout not broader than 6 feet, and as it winds up the mountains, now from one side, then from another, a superb view is to be had into the valley of the Yogawa from which we ascend. The mountain slopes are all covered with thickets, through which everywhere a path is broken, uniting two branches of a zigzag, [75] and shortening the way considerably if made use of; but this is only possible to unburdened travellers, who, moreover, must not care for their clothes.

The small temple of Gongen at the highest point of the road, I found to be situated about 4,000 feet above the sea level. Here is the boundary of the three provinces of Echigo, Jôshiu and Shinano, and from the fact that those three provinces unite here the mountain derives its name of *Mikuni* (three countries). The temple is a small wooden building, and always closed; there is only a small hole in the door, through which however nothing is to be seen. A large wooden *torii* with an *ishi-dôrô* on each side, is placed before the entrance; on this *torii*, the Japanese try their fortune in the usual way by attempting to throw small stones on the cross-beam. After all I had heard about the renowned temple on the top of this mountain, I was very much disappointed in seeing this wretched place.

Though the scenery N. of the Mikuni was superb, it cannot be called charming; it was in all too green; excepting a lovely white Japanese lily on the mountain-slopes, no flower was to be discovered; and in this respect I think the Shinshiu-road is to be preferred to the Mikuni road. Perhaps, however, it was the fault of the time of the year, and that in May blooming azaleas and *fuji* flowers will give to this road an equally, if not more charming aspect than to the Sinshiu-road.

The road now enters the Province of Jôshiu; the first resting place is a large but dirty tea-house, at a place called Gongen-no-bettô, the

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road alternately descending and ascending to nearly the same height as the Gongen temple. The scenery is finer here than on the North side of the Mikuni top; many cascades, coming from the mountain slopes on one side, cross the road and fall into the deep valleys leading to the Tonegawa.

After Gongen-no-bettô the road descends to Nagai; it is broader and shaded by high trees; the mountain slopes are grown with the *Kashiwa* (a kind of low, knotty oak), with a tree which has some resemblance to a beech, and [76] with a kind of walnut tree, all rising amidst thickets and encircled by ivy.

Nagai was also destroyed during the war in 1868. From this place to Fuse the valley of the Nishi kawa is followed along its left bank to Kayabara, where it is crossed by a bridge. The Nishi kawa is a right tributary to the Tonegawa; it has quite the aspect of a mountain stream, and viewed from the hills with its clear water, with wooden bridges of a particularly clever and quaint construction leading over it, the whole enclosed by hills covered with fresh verdure, it furnishes a pleasant sight. As far as can be seen the valley is moreover covered with villages.

Between Fuse and Nakayama a new road has lately been opened, shortening the distance, as it formerly was, by 1½ *ri*. But this part is certainly the most trying one of the whole road. The ascent of these hills, along the slopes of which it has been cut, is steep; at most places it is not broader than five or six feet, this width being sometimes obtained by trunks of trees, supported by props, or by large stone-blocks against the descending mountain-slopes, and covered by branches of trees over which one has to go. It looks very dangerous, and I think will be wholly impracticable, and in many parts liable to be destroyed by heavy rain-falls. After the highest point has been attained, at a place called Kiri-ga-kubo tôge, the road descends more slowly to the valley in which Nakayama is situated, being for a great part an uncultivated and solitary grass-land with a tree scattered on it here and there, and with a gently undulating soil. Nakayama itself is a place of very poor appearance, quietly situated in the midst of the valley.

Leaving Nakayama the road gradually ascends for about 1 *ri*; the highest point is reached here between the Minami and the Komochi

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yama, two grass-grown hills on both sides of the road, at a little distance from it; in clear weather Asama yama is to be seen from this in about a S.W. direction. From here to Yokobori the road descends rapidly; about half way there is a splendid view between [77] the mountains into the Tonegawa valley, and the whole silk-districts around Mayebashi. The road is for the greatest part not shaded, tolerably smooth, but steep. Yokobori consists of a row of houses on both sides of the street. One *ri* further on, at Kitamoku, the Agatsumagawa is crossed by a large wooden bridge; this river is another right feeder of the Tonegawa. After climbing the hill which rises here directly at the right bank of the river, for the last time, on the home road one of those beautiful views is to be had of the river valley and over the villages lying scattered in it, such as one often sees in the interior of Japan.

The road leads now through a very fertile district to the large town of Shibukawa, where for the first time from Niigata *jinrikisha* were again met with; this town is situated at a little distance from the right Tonegawa bank, and about 3 *ri* from Mayebashi; it is an important trading town.

While from Shibukawa one road goes S. E. to Mayebashi, another goes generally ascending S., over Kaneko, to Takasaki. Almost uninterruptedly the road is on both sides lined with houses and very prosperous looking farms; the intervals being occupied by temporary small booths, in which fruits, such as *suika* (water-melon), *makua* (musk-melon), pears and cucumbers are sold.

On this part of the road, women and girls were always industriously occupied in reeling off the silk cocoons; while the chief business of the men seemed to be sleeping; there was, at least, scarcely any house in which one or two were not laid stretched in the arms of Morpheus, while their wives and daughters were cheerfully at work.

At Kaneko is the finest *honjin* (official inn) I have seen, but it now belongs to a silk-merchant; from this place to Takasaki the road slowly descends through the fields, and Takasaki itself, as it is seen from this side, stretching over a considerable extent with its castle walls and numerous white plastered buildings, projecting against the green hills, gives a pleasing impression.

[78] Throughout both roads between Yedo and Niigata, in every

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place of importance, there was a house belonging to the "Riku-un-kaisha" (an overland transport company), which was, as far as I could see, very well organised. Here we were provided with *jinrikisha*, *kago*, pack-horses and coolies, after a fixed tariff, which differed slightly according to circumstances; thus, in the mountains, it was a trifle higher than on the flat parts of the road.

For *jinrikisha* 1 "*shu*" per *ri* was paid; if with 2 coolies about 10 cents. In the mountains the weight which a man had to bear was 7 kwamme (about 57 pounds); he was paid for that 5.2 *tempô* per *ri*; if carrying more, his wages were increased in proportion. A *kago*, borne by two men, pays for 2½ men, as a compensation for wear and tear. On an average the Kaisha offices were 3 or 4 *ri* apart; taking 3½ *ri*, a coolie's wages in the interior should be something between "*sanshu*" and "*ichibu*." Very often the Kaisha offices were at the same time the municipal offices of the villages, with the "*Kôsatsu-ba*" (or official notice-board) before the entrance. The distances which separate the villages are measured from notice board to notice board.

By this company all merchandise is despatched by pack-horses from office to office. The horses are often led by little girls; when arriving at the different stations the packages are at once taken from the horses and thrown upon the ground, where they remain lying till fresh horses are ready to carry them to the next station; while the other horses immediately return.

In order to assemble the necessary number of coolies in some of the villages, a kind of roll had to be beaten with a wooden hammer on a hollowed-out piece of wood, hanging in front of the Kaisha-office. This operation had often to be repeated 10 or 12 times before the required number arrived; they came on very slowly and drowsily, but after having weighed their load and prepared to start, they become jolly and good-humoured, and all the way there was no end to their talking and laughing.

[79] In general they are a very good-natured kind of people, and though "uncivilized," as some call them, I think many of our own civilized races in Europe might take them as an example for their kind and polite manners towards each other. I remember a young coolie inviting an "O-jiisan" (old man) who walked before him, to change

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burdens, his, (the O-jiisan's) being far the heavier of the two, which offer was gratefully accepted after the necessary courtesies and compliments.

However not only the coolies, but all other people I came in contact with seemed to me equally kind and well-disposed to foreigners; all the way I never met with the least ill-will.

It struck me that the inhabitants of Echigo and particularly of Niigata were generally better looking and of larger stature than those of Yedo, many of them having the Jewish type; the girls too, are undoubtedly better looking, and Echigo used to be the principal recruiting-place to fill the *Yoshiwara* at Yedo and Ôsaka.

I have had much assistance during this trip from 2 Japanese maps; one is the generally known "Fujimi Jiusan Shiu Yochi Zendzu" (map of the 18 Provinces which are to be seen from the top of Fuji-Yama); the other is named "Echigo Shiu Shikiyenshi" (being the Echigo-sheet of a map of the whole of Japan). I found the first to be pretty accurate as to the direction of the road and the distances from place to place; the second one is merely descriptive and has not the least claim to any accuracy as to measures or directions.

For the rest, though I have given here some details which may prove interesting, I could have given many more if I had been acquainted with the Japanese language. This not being the case, I entirely depended upon my interpreter, who never told me anything I did not ask for, and whose answers I had, at it were, to draw from his mouth, though I must do him the justice to say that he took more interest in the incidents of the journey than Japanese generally.

[80] For any one acquainted with the Japanese language, I think no trip can be more interesting than the one here roughly sketched out.

J. A. LINDO,
Lieut. Royal Engineers,
(Dutch Army).

A General Meeting of the Society was held on Wednesday evening, the 18th November, 1874, at the Grand Hotel. The chair was taken by Sir Harry S. Parkes, one of the Vice-Presidents.

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The Minutes of the last General Meeting were read and approved, and it was announced that the following gentlemen had been elected Ordinary Members of the Society :—Lieut. A. J. Lindo, R.E. Dutch Army ; Drs. A. J. Geerts and Dwight Dickinson ; and Messrs. S. Parry, T. Lepper, Julius Bryner, and F. Walker.

Dr. Geerts then read his second paper on the "Useful Minerals and Metallurgy of the Japanese." It treated, on this occasion, of the metallury and properties of the copper of this country.

The Chairman tendered the thanks of the Society to the author for his valuable and exhaustive paper on the metal for which, perhaps above all others, Japan was most famous.

In reply to a question from the Rev. Dr. Syle, Dr. Geerts said that "yake" was a mineral of a greenish colour, which, though it did not itself contain much copper, was nevertheless very useful, as it indicated wherever it was found that copper ores also existed in the vicinity.

Mr. R. Vicars Boyle then read a paper by Mr. J. A. Lindo entitled "A trip to Niigata, and back by the Mikuni Pass." The reader had kindly furnished, in illustration of the paper, some maps upon which the route might be followed.

The Chairman observed that Mr. Lindo had described not only one but two interesting journeys, and his account showed that a trip to Niigata by either of the routes which he had taken was full of attraction. The interest of the subject, however, was not limited to travel only. Niigata is a place of considerable promise ; as a Treaty Port it is said to be opened to foreign trade but it is really closed to it by the natural obstacle of the bar at the mouth of the Shinanogagwa. It is of great importance to commerce that this obstacle should be removed. As the surrounding country is very rich, its vast crops of rice give it the name of the granary of the nation, and it also produces minerals, petroleum, tea, tobacco, hemp, [81] and other products. He invited gentlemen present who were able to speak on the subject of the port and bar to give the meeting the benefit of their observations.

After a few observations from Mrs. Ayrton on the subject of the tariff for the Coolie Stage, and a few remarks from Dr. Geerts about the Province of Echigo.

Mr. Brunton said that as Niigata was a Treaty port, and the only means by which it could be made really a port was by the Shinanogawa, perhaps a few particulars concerning this river would be of interest.

The Shinanogawa was the outlet for the drainage waters of a large tract of country in the provinces of Shinano, Musashi and Echigo, as had been described in the paper. Its general course was in a northwesterly direction, and its total length was about 250 miles. On the 21st June, 1871, from actual gauging near the mouth, Mr. Brunton had found the discharge to be 1,500,000 cubic feet per minute, while on the 23rd June, after one day's heavy rain, the river's surface had risen one foot, its velocity had increased in some places three times, and its discharge was 3,900,000 cubic feet per minute. The Thames discharged only 400,000 cubic

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feet per minute in floods, and 45,000 cubic feet per minute in ordinary summer weather: and the Rhine 10 millions in floods, and 900,000 cubic feet per minute in ordinary summer weather, which latter, consequently, had about the same volume as the Shinanogawa. Up to 40 miles from the sea, the river maintained an irregular width varying from 4,000 feet to 1,200 feet, and over the whole of that distance down to the mouth various shallows and sand bank had been thrown up, which not only impeded the flow of the water, but almost entirely destroyed the use of the river for navigation purposes. Its depth over that distance varied from 20 feet to 3 feet. For vessels drawing over this latter depth it could not be considered navigable more than a few miles above Niigata. From all Mr. Brunton could ascertain no attempts whatever had been made at any place either to regulate the course of the stream, or to protect its banks. The banks of the Shinanogawa were so low, and so easily washed away that great damage was done to them and to the neighbouring country in floods. Thus he was informed that 12,000 acres of valuable rice land were flooded five or six times every year. Instead, however, of raising the banks, and otherwise regulating the flow of the river, the scheme to remedy this state of matters which had been adopted by the Japanese authorities was the formation of a new channel of large dimensions to carry off the surplus flood waters of the Shinanogawa. At the entrance of the Shinanogawa to the sea the bar which had formed stretches across its mouth, having a channel through it which at the time of Mr. Brunton's visit ran in a north-westerly direction and had a minimum depth of water in it of from seven to eight feet, which had, according to the paper just read, now been reduced to five feet. It was said that this channel changed more or less every day, each flood and each gale of wind moved it considerably, but its movements did not, [82] so far as he could discover, seem to be ruled by any principle. The bar, however, presented no peculiarities which were likely to render it difficult to be successfully dealt with. It had on the contrary many advantages which with proper treatment made it most capable of improvement. It was composed of the finest sand, which was moved about by every disturbance in the water, whether waves from seaward or river currents from in shore. It was stated that there was at least thirty feet depth of this fine sand on it, and with a properly directed stream carried through a channel of proper width, this could not fail to be to a great extent cleared away. Mr. Brunton felt convinced, from the success of the works at the Sulina mouth of the Danube, the Oder, the Tees, and other rivers which were in many ways similar to this, that by the proper execution of a well devised harbour scheme having piers running out into deep water to cause a scour over the bar, a very fair commercial port might be made at Niigata. The Shinanogawa, running for 250 miles through one of the most productive districts in Japan, offered, with a little improvement of its channel, an excellent means of transport for the various products to Niigata, and with a harbour there capable of admitting vessels of a good draught there could be little doubt of its success as a port. Works of the nature suggested would have the

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effect of deepening the bar to admit vessels of a draught of from twenty-five feet in very fine weather to about twenty feet when there was so much sea as to cause a ship to pitch considerably below her line of flotation ; and though in some weathers it would be hazardous and perhaps impossible to enter between the piers at all, Niigata had the advantage of having, at a distance of thirty miles directly off the coast, the Island of Sado, where vessels might with safety anchor and wait for suitable weather to enter in. In this respect it had an immense advantage over all the harbours on the east coast of England, between the Thames and the Forth, a distance of 400 miles, along which coast there were none but tidal and river harbours, the entrance to which were most precarious, where the prevailing winds were easterly and right on the coast, and where the largest traffic in the world was carried on without a harbour of refuge of any kind. The effects of the piers on the bar at the Sulina mouth of the Danube might be here given, as the circumstances in which they were built were so analogous to what was required at Niigata. "The depth on the bar in 1829 was from 7 feet to 12 feet. In 1857 the "navigable channel was only 9 feet deep. In November, 1859, the North Pier had "advanced 3,000 feet and the South Pier 500 feet ; the depth on the bar was then "10 feet. On 30th November, 1860, the works being completed, there was a good "navigable channel of 12 feet ; on the 31st December, of 13 feet ; on 28th February, "1861, of 14 feet. Then came the breaking up of the ice, and the furious descent "of the extraordinary high flood, but this time the swollen waters being confined "between the two piers and [83] directed in a proper line, instead of causing a "diminution of the depth fairly swept the remains of the bar on to the south "bank and into deep water. From that time to the present the depth has never "been less than 16½ feet, and frequently as much as 17½ feet."[1]

In conclusion Mr. Brunton said that there could be no reason why similar results should not follow the erection of properly executed piers at Niigata.

In reply to a question from the Chairman, Mr. Brunton said that two years ago he had estimated the cost of such works as he had described at about $800,000.

Mr. Brent made a few remarks regarding the communication between Niigata and Nagaoka, and said that a native company had already started a small steamer, drawing only 1½ feet of water, to run between those places up the Shinanogawa, and he thought they intended to put a second boat on the same river shortly.

In reply to a question from the Chairman, Mr. Boyle remarked that it did not appear why the post did not use the road down the valley of the Shinanogawa to Niigata, instead of the road along the coast, but he had been informed by the local authorities that arrangements were being made for the post to follow the valley route.

The Chairman thanked Mr. Brunton for the very interesting statement he had

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[1] From Sir C. Hartley's paper on the Delta of the Danube, read before the Institution of Civil Engineers in London.

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given the meeting. The history of the bar showed that it was of comparatively recent growth. It appeared that as late as 1820 the Shinanogawa received near to its mouth the waters of the Aganogawa, and it was said that the depth of the entrance was then twenty or twenty-five feet. But in order, as it was supposed, to improve the drainage of the plain and to check inundation the channel of the Aganogawa was diverted and conducted into the sea by its present mouth, which opens a few miles above the mouth of the Shinanogawa. The waters of the former were thus lost to the latter, the force of the stream was checked just at the point where it was most necessary to preserve it, and consequently the growth of the present bar rapidly increased. The desired object was not attained for the obvious reason that as the mouth of the river contracted in depth it could not carry off the same volume of water as before, and the people were again troubled with inundations. Unmindful however of the warning afforded by the opening of the Aganogawa, north of Niigata, the Japanese had lately sought to repeat the mistake by opening a cutting from the Shinanogawa into the sea at Teradomari, about 26 miles south of Niigata. Fortunately this cutting had not been completed and the work upon it was now stopped. Were it allowed to be carried out it would complete the ruin of Niigata, as the mouth of the Shinanogawa would probably in that case be soon entirely closed. What was required was that the Shinanogawa should carry off all its [84] waters by its own channel, and thus maintain a scour of sufficient strength to prevent deposits forming at its mouth. It was well that the Teradomari cutting had been abandoned in time, and it was to be hoped that the attention of the Government would be directed to sounder measures for the conservancy of the river and the preservation of the port. It was lamentable to hear it stated that nearly eight hundred thousand dollars had been spent on this worse than useless cutting, a sum believed to be sufficient to construct the works advised by Mr. Brunton and also by Mr. Lindo.

The meeting terminated in the usual manner.

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USEFUL MINERALS AND METALLURGY OF THE JAPANESE.

C.

By Dr. Geerts.

LEAD AND SILVER.

[*Read before the Asiatic Society of Japan on the 23rd December, 1874.*]

[85] LITERATURE: Kaempfer's History of Japan, Book I, Chap. VIII. Stan. Julien et Champion Industries, etc., page 40. Geerts.—Japan in 1871. "Gids," No. 8 and 9, 1872. Japanese Technology.—*San-kai mei-butsu Dzu-kuwai*, 1st Vol. Japanese Mineralogy *Seki-kin-san-sho-ko. Ko-san-sei-ran-sen*, or short indication of the chief ore bearing mountains.

Japanese history does not mention the year when lead (鉛 *yen namari*, Syn. Koku yen, u-jaku) was obtained for the first time in Japan. Silver-ore was discovered accidentally, it is said, in the year 667, A.D., at Tsu-shima, during the digging of the foundations of a new castle, named Kanedono-shiro;[1] this ore produced the first Japanese silver metal in the year 674.[2]

[1] *Hoffman:* Japan's Bezüge mit der Koraïschen Halbinsel und mit China pag. 133 (translation out of Nippon ki XXVII. 10 Z. Y.) edited in *Siebold's* Nippon Archiv VII.

[2] *Hoffman:* ibidem pag. 133 (transl. out of Nippon ki and Wa-kan-nen-kei) and *Wa-nen-kei* oder Geschichtstabellen von Japan pag 40, published in *Siebold's* Nippon Archiv.

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[86] Lead is a metal not much used by the Japanese. The reason for this cannot be the want of ore, as has wrongly been stated by many authors ; for we have the best proofs that *galena* (the chief lead ore) and even an excellent kind of this mineral, is far from being rare in Japan.

Silver was in former times, especially from A.D. 1,400 to 1,600 found and melted in Japan in much larger quantities than at the present time. It is stated by the Japanese that the mines of Gin-zan in Iwami alone had formerly produced from 15,000 to 25,000 lbs. silver annually, whilst at present only 100 lbs. of silver are produced there yearly. There has been a time when there was an abundance of silver in this country, but after the old trade of the Portuguese and Dutch[3] and particularly after the opening of Japan in 1859, silver became scarce, because of the former large export of this metal to foreign countries. We cannot agree with some authors who say that at the present time the Japanese soil should be very rich in silver-ore, because we have not found many samples of *rich* ores, but chiefly a relatively small quantity of silver as an admixture in several copper and lead minerals.

The ores in which lead occurs in Japan are :

1.—Galena or Lead Glance (sulphide of lead) 輝鉛鑛 *Ki-yen-ko*. We have seen several varieties ; the finest kind consists of crystalline aggregates of large cubes, which readily cleave in directions parallel to their faces. It is found frequently in the same veins with copper pyrites and contains often a small quantity of sulphide of silver. The extraction of lead out of this mineral is effected by a roasting and melting process, nearly similar to our western "*niederschlag*" method. In many samples we found a small quantity of silver. The largest amount of silver we found in lead glance is about 1 per cent. According to the Japanese works on this subject, Galena is found in many places in Japan, but still the quantity of lead produced by the Japanese has been relatively small—up to the present time about 4000-5000 cwt. annually. It is not easy to understand why lead metal has been and is still a regular article of import from Europe.

It is true, bar-iron is also an article of import although [87] good

[3] Francois Valentyn Oud en Nieuw Oost Indie Vol 1. 2de Stuk. Beschryving van Japan pag. 48.

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iron ore is abundant in Japan; but this anomaly is caused by the difficulty of smelting good bar-iron out of the ores, which is not so with the extraction of lead out of galena. The latter process is much easier than the extracting of copper out of copper pyrites or iron out of iron-minerals.

The principal lead mines of the present time are at Ani, Yabetsu, Daira, Kagoyama, all in Ugo province, Hosokura in the province of Rikuzen, Kosaka in the province of Rikuchiu, Inohana in Omi, Kamiyoka in Hida province.

Lead glance occurs also in the following Provinces of Japan:—

Provinces.	Districts.	Places.	Remarks.
Yamato	Yoshino-gōri	Takahara-mura.	
Ise	Inabe-gōri	Ishidzure	Contains a little silver.
	Imbe-gōri	Haruta-yama	
Settsu	Kawabe-gōri	Tada-mura	The veins seem to be poor, as these mines only produce a small amount of lead.
		Kurokawa-mura	
		Hase-mura	
		Yama-mura and several other places.	
Omi	Inuhana-gōri	Inohana, Taga-mura.	Good mines.
	Aichi-gōri	Mandokoro-mura.	
	Koga-gōri	Kurotaki-mura.	
		Okawara-mura.	
Mino	Gunjo-gōri	Hatasa-mura.	
	Motosu-gōri	Omatsu-mura.	
	Mugi-gōri	Motochi-mura.	
Hida	Yoshiki-gōri	Kamiyoka-mura ..	Contains silver, which is separated from the lead by cupellation.
		Shikama-gumi	
		Higashi-urushi-yama-gumi.	
	Masuda-gōri	Atanogo-mura.	
		Nagase-mura.	
Iwashiro	Onuma-gōri	Oishi-da-mura.	
	Kawanuma-gōri	Kurosawa-mura.	
Rikuzen	Kurihara-gōri	Uguisu-sawa-mura..	Galena with 0.05 % silver, old silver-lead mines, which produce yearly about 32,000 lbs. lead, 14 lbs. silver. Silver separated by old cupellation method.
		Hosokura-mines....	
Rikuchiu ..	Kadzuno-gōri	To-ada Gin-zan	Very good galena with some silver.

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Provinces.	Districts.	Places.	Remarks.
Mutsu	Tsugaru-gōri	Ikari-ga-seki-mura. Soma-mura.	
Uzen	Murayama-gōri	Takara-sawa-mura.	
Ugo	Yamamoto-gōri	Yabetsu yen-san, Daira	Fine galena, which produces yearly about 181,473 lbs lead.
	Akita-gōri	Ani, Mukaiyama .. Kosaka-no-ko-zan.	Yearly produce about 200,000 lbs lead.
Echizen	Ono-gōri	Kurotado-mura .... Nojiri-mura.....	Contains also silver.
Echigo	Uwonuma-gōri	Shimo-ushitachi-mura ..... Uyedano-Ginzan ..	ditto.
Tajima	Kita-gōri	Hajiri-mura.	
Bichiu	Kawakami-gōri	Ko-idzumi-mura .. Rokusho-dani.....	Associated with copper pyrites.
Bingo	Yasuna-gōri	Mitani-yama.	
Aki	Yamagata-gōri	Kohara-mura.	
Nagato	Mine-gōri.....	Nagato-mura.	
Kii	Muro-gōri	Ayu-kawa. Wada-mura.	
Bungo	Ono-gōri	Kiura-no-ko-zan. Oshiroya-mura. Uchi-no-kuchi-mura.	
Hiuga	Usuki-gōri	Iwato-mura.	Contains silver.
Higo	Yatsushiro-gōri	Ohobata.....	Galena with 0.1 % silver.
Yesso	near Hakodate	Yurap lead-mines at Ichinowatari	Said to have produced in former years as much as 150,000 lbs lead annually. At present the produce is small.

Although *galena* is the only lead mineral used in Japan for smelting lead, there are still some other compound lead-ores to be found, of which the following occur in the largest quantity.

2.—Lead Antimony Ores, several varieties.

Jamesonit in long radiated, fibrous crystalline masses of a leaden-grey colour.

B.—*Plagionit* or *Rosenit* in granular aggregates or amorphous masses of a dark black grey colour.

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C.—*Heteromorphit* or *Antimony feather-ore* in fibrous aggregates of a dark grey colour.

All these minerals contain lead, antimony and sulphur as chie elements; often some iron and other impurities. They seem to be found at many places in Japan. We received samples from Higo: Ohobata; Higo: Hitoyoshi; the island of Amakusa; Hiuga and Satsuma. These ores have little practical value, because it is too difficult to separate the lead from the antimony by melting, and also because lead and antimony are found in better minerals, as galena and antimony glance. At Tsubakiwara in the province of Bungo a lead-antimony mine is worked.

Metallurgy of Lead.

The galena is first roughly assorted by hand, separated by mechanical treatment from the foreign stones, afterwards coarsely powdered under dry stamps, sifted and washed by hand in wooden pans. It is then smelted in a hemispherical furnace, the interior sides of which are covered with a layer of fire-proof clay and charcoal-powder. The tubes of two bellows reach through openings in the upper border into the furnace. Charcoal is used as fuel. When the galena is fused, it is converted by the air of the bellows, partly into sulphate of lead and partly into lead metal, whilst a portion of the sulphur escapes, together with the products of combustion, as sulphurous acid. Immediately afterwards this portion of metallic lead acquires oxygen and is thus converted into oxide of lead. Another portion of the galena remains unaltered. After this roasting process the second operation commences. A fresh supply of fuel, together with about 30 % of pig-iron in small lumps is thrown into the furnace and the whole stirred when the heat is at its maximum. The fluid metal runs to the bottom covered by matte and slags. The latter are removed by throwing water on the bath till the surface of the lead is free. The lead thus obtained is very impure and contains still a large amount of oxide of lead and some sulphide of lead. It is smelted therefore again in a smaller furnace with some charcoal, in order to reduce the oxide of lead. The sulphide [89] of lead still ingredient rises with other impurities to the surface of the melted lead and is

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scooped away carefully. The pure metal is then finally cast into small iron cans, or into sheaves and cakes. Lead is also obtained from litharge, produced by the cupellation process of silver, by smelting the litharge with charcoal, to reduce the oxide of lead.

The silver ores met with in Japan, are:—

1.—DENDRITICAL NATIVE SILVER (silver moss) 自然銀 *Ji-nen-gin.* The ore seems to occur but seldom in Japan. We saw it only once in a small quantity. It does not serve for the extraction of silver.

2.—SILVER GLANCE 輝恢脂 *Jaku-ko-shi* or 銀鑛 *Gin-ko;* Syn. *Sudzuno-yani, Mategara* or 輝銀鑛 *Ki-gin-ko.* This valuable silver-ore is found, though only in small quantities, in the mountain *Beshi*, in the province of Iyo, in *Ginsan of Iwami*, in Tadayama, in the province of Settsu. It produces some silver but much less than the following ore, which is the chief silver-mineral of Japan.

3.—GREY COPPER-ORE (or FAHLERTZ) 黝銅鑛 *Yu-do-ko*, a very compound mineral, mentioned already (Metallurgy of Copper). This ore is worked both for copper and silver. It occurs in several places in Japan.

4.—LEAD GLANCE with a variable but small amount of *silver sulphide.* This ore is also used in silver-metallurgy. The last mentioned silver-ores are found and worked at the following places in Japan. At most of these places the production of silver is, however, exceedingly small.

The principal silver mines of the present time are at Innai, Ani, both in Ugo province, the island of Sado, Ikuno in the province of Tajima, Kosaka in the province of Rikuchiu, Ginzan-machi in the province of Iwami, Handa in the province of Iwashiro.

PROVINCES.	DISTRICTS.	PLACES.	REMARKS.
Yamashiro ..	Kii-gōri	Fukakusa-mura.	
Yamato	Yoshino-gōri	Takahara-mura	Out of lead glance.
Kawachi....	Nishikibe-gōri.....	Kagata-mura.	
Settsu	Kawabe-gōri	Yosaki-mura ..... Tamida-mura ..... Tada-mura ..... Akamatsu-mura	Out of galena and grey copper ore.
Ise	Miye-gōri ..... Imbe-gōri	Midzusawa-mura .. Haruta-mura	Out of galena.

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Provinces.	Districts.	Places.	Remarks.
Musashi	Chichibu-gōri	Nakatsu-gawa.	
	Tama-gōri	Naruki-mura.	
Omi	Aichi-gōri	Mandokoro mura ..	Out of galena.
	Inohana-gōri	Inohana, Kurotaki..	
Mino	Gun-jo-gōri.....	Hatasa-mura.	
	Mugi-gōri	I-tatori-mura.	
Hida	Yoshiki-gōri	Kamiyoka-mura	Out of galena and grey copper ore.
		Shikama-mura	
		Higashi-hira	
	Masuda-gōri	Yotsumi-mura	
		Kadzukawa-mura ..	
Shimotsuke..	Tsuga-gōri	Mukada-mura.....	Out of grey copper ore and galena.
		Sandokoya-mura ..	
Iwashiro	Date-gōri	Handa	Silver glance and grey coppper ore; very old mine. Freiberg barrel amalgamation; yearly yield about $9,000 only.
	Onuma-gōri.....	Karuisawa-mura.	
		Oishi-mura.	
		Midzu-numa-mura.	
	Kawanuma-gōri	Yashiki-mura.	
Rikuzen	Kurihara-gōri	Hosokura	Galena with a little silver; yearly produce only 14 lbs.; old cupellation method.
	Kami-gōri	Miyasaki-mura.	
Rikuchiu	Kadzuno-gōri	Kozaka kanayama..	Grey copper ore and silver glance; Ziervogel and Hunt Douglass process; produces about 2500 lbs silver yearly; good mine.
	Iwate-gōri	Kushiki-mura.	
Mutsu	Tsugaru-gōri	Ikarigaseki-mura ..	Out of grey copper ore.
	Sannohe-gōri	Tago-mura	
Uzen	Murayama-gōri	Sekiya-mura	
	Oitama-gōri	Akaye-mura	
	Mogami-gōri	Taniguchi Ginzanmura.	

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Provinces.	Districts.	Places.	Remarks.
Ugo	Yamamoto-gōri	Kago-yama	Copper refining and silver extracting works for the neighbouring copper and lead mines. Old style furnaces; produces only little silver.
		Yabetsu Daira	Galena with a little silver.
	Akita-gōri	Ani, Mukaiyama	Produces yearly about 1100 lbs silver.
	Okachi-gōri	Innai	Silver glance. Circa $\frac{1}{3}$ % silver; the best silver mine in Japan; old Jap. system produces yearly about 3,500 lbs silver.
Echizen	Ono-gōri	Horina-mura Hakose-mura Kadono-mura Nojiri-mura	Galena and grey copper ore.
Etchiu	Nikawa-gōri	Kametani-mura	Grey copper ore.
Echigo	Kambara-gōri	Miyazaki-mura. Otani-mura.	
	Uwonuma-gōri	Arayama-mura. Shimo ushitachi-mura.	
Sado Island.		Seijiko Hiugako Jingoko Torigoyeko Okireko	Pan-amalgamation process; yearly produce about 3000 lbs silver.
Tajima	Asako-gōri	Ikuno	Silver glance with gold in quartz gangue. Very old mines; Freiberg barrel amalgamation; produce about 1,300 lbs silver yearly.
	Kita-gōri	Hajiri-mura.	
Inaba	Takakusa-gōri	Seta-kura-mura.	
Hoki	Hino-gōri	Gin-san-mura.	
Iwami	Nima-gōri	Gin-zan-machi	Old celebrated silver mine; furnaces old Jap. style; grey copper ore and a little galena. Yielded in former times much more; at present only about 100 lbs silver yearly.
	Ochi-gōri	Motohara-mura.	

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Provinces.	Districts.	Places.	Remarks.
Mimasaka ..	Yeta-gōri	Nankai-mura.	
Bichiu.....	Kawakami-gōri	Koidzumi-mura.	
Suwo	Kuga-gōri	Futaya-yama.	Out of galena.
Kii	Muro-gōri	Yoshikawa-mura.	
Sanuki	Ano-gōri	Kokubu-no-mura.	
Iyo	Uma-gōri	Betsu-shi-dō-san.	
	Ni-gōri	Daisho-in-mura.	
Bungo	Ono-gōri	Toroko.	
		Naruse.	
Hiuga	Usuki-gōri	Iwato-mura.	
Osumi	?	Yamagano	Silver glance with native gold in quartz. Stamps and pan amalgamation foreign style; yearly produce about 60 lbs gold and 40 lbs silver.
Satsuma	?	Mukowoda	Silver glance with a little gold in quartz veins. Amalgamation mills. Yearly produce about 200 lbs silver and 20 lbs gold.
		Seigano	
Tsushima ..	Shimo-agata-gōri ..	Shine-mura.	

[90] Metallurgy of Silver.

Liquation and Cupellation Process.

The amount of silver smelted in Japan between the 15th and 17th century was by no means small; the Portuguese and the Dutch, in the first years only of their trade with Japan, exported large quantities of this precious metal. In the year 1671 the export of silver was prohibited by the Japanese Government. It is a well known fact that in later times comparatively little silver has been found and smelted in Japan—about 25,000 lbs. yearly. Lead, which contains a small quantity fo silver, silver glance and blister copper (*ara-do*) or metal mixtures, obtained from grey copper-ore, form the mere material for the metallurgy of silver. Formerly the separation of silver from lead or copper was effected chiefly in the Government refinery at Osaka, but in latter times

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it has also been carried on in other places. The [91] process used by the Japanese does not differ much in principle from our Western method. The whole working is divided into four stages:

1st.—Smelting of the coarse metal containing silver with a certain quantity of lead, in order to dissolve the silver by means of the melted lead and to obtain a compound metal, called 合吹銅 AWASE-BUKI-DO, copper smelted together [with lead].

2nd.—Heating of this alloy in a kind of liquation furnance with an inclined bottom, to carry off the lead and silver in a liquid state as 出鉛 DE-NAMARI, lead which has run out [of the alloy]. The copper and other less fusible metals remain in an unmelted condition, as porous masses, at the bottom of the furnace. This porous metal is called 南蛮吹銅 NAN-BAN-BUKI-DO (copper smelted after the manner of the the southern barbarians).

3rd.—Cupellation in a low furnace with a bottom of buck-ashes, in order to obtain raw silver, called 灰吹銀 HAI-BUKI-GIN (silver smelted upon ashes).

4th.—Refining or second cupellation in a small furnace. The old Portuguese had very probably made known this operation to the Japanese. Bürger (l.c.) states that the Japanese used in olden times another (Chinese) desilvering process, called *Gin-zam-buki*, but this method was not very profitable and could only be used with rich ores. This old process is described in an ancient Chinese technological work called *Ten-ko-kai-butsu*. About the year 1590 a foreigner (Portuguese?) named *Haku-sui* shewed, it is said, a Japanese called Sumitomo the manner of separating silver from lead or copper, even when it occurs in a small quantity only. Sumitomo introduced the new process into his metallurgical works, rose in wealth and power, and got an Imperial patent for the purification of copper and separation of silver from lead and copper. He lived with his family in Osaka and took the family name of *Haku-sui*, in addition to his own, in honour of and out of gratitude to the foreigner. Bürger believes, and we think rightly, that the foreigner *Haku-sui* must have been a Portuguese, because the name *namban-buki-do* (copper smelted after the [92] manner of the southern barbarians) for the porous metal mass, left after the extraction of the lead, and the year 1,590 gives some reasonable ground for this belief.

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The family *Sumitomo* exists still in Osaka. At the house of the present head of the family, in Osaka, Nagahori ichome, may be seen several old documents in relation to this fact, and also a collection of old presents, given by the former Dutch Embassies to Sumitomo when they paid the customary visit to his copper-works.

We will now proceed to the description of the desilvering process.

1st.—The silver containing raw metal (blister-copper, etc.) is mixed with variable quantities of lead (according to the amount of silver) and the whole smelted with a charcoal-fire in a small furnace of fire-proof clay. The fluid metal is then cast in round or square plates, and leaves the name of *awase-buki-do*.

2nd.—This alloy *(awase-buki-do)* is now placed on the inclined bottom of a small liquation furnace and the whole heated gradually. The lead with the dissolved silver flows off from the bottom in a liquid state, *de namari*, whilst the copper and other less fusible metals remain in a solid condition on the hearth. Thus the lead and silver are separated from the copper and other metals. The porous masses which remain on the bottom are afterwards smelted and purified to obtain dry copper from them.

3rd.—The cupellation or separation of lead and silver is effected in a low hemispherical furnace, with a loose covering: on account of its form, this furnace is called a "toad furnace." The rounded bottom of this furnace consists of a fire-proof hollow in the ground, covered with a thick layer of sifted wood-ashes, previously washed with water to extract the soluble matter. This ash bottom is stamped and moulded with great care. In the middle a round cavity is made, to receive the smelted metal. The ash floor is beforehand carefully dried and heated, in order that there may be no chinks by which the silver might be lost. The alloy of lead and silver is then placed with charcoal on the bottom, the furnace is closed with a low covering of fire-proof clay, and the whole strongly [98] heated till the metal flows, a strong current of air being constantly thrown over the metal by the pair of bellows behind the wall. At this high temperature the lead is oxidized and gradually absorbed as oxide by the porous material of the ash floor. The red oxide of lead or litharge forms at the end one solid mass with the bottom and is called then 密陀

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Mitsu-da-so or *Gin-rokasu*, Syn. *Shiro-kane-no-nerisoko*. This mixture of ash and litharge is afterwards worked for lead, for which purpose it only wants to be smelted with some charcoal to reduce the oxide of lead. During this operation the silver is not oxidized and is therefore not absorbed by the porous ash bottom. At last the silver, mixed with a little oxide of lead and lead metal, remains in the cavity of the cupel bottom. The furnace is then allowed to cool. The remaining metal is finally cooled with water and taken away. It bears the name of *hai-buki-gin* (silver smelted upon ash).

4th.—Refining the silver.

The cake of impure silver is placed in another small cupellation furnace with a fresh ash-bottom. The heat must be regulated carefully, otherwise the silver would be partly thrown away by the sudden discharge of absorbed oxygen. When nearly the whole of the lead and other impurities have been absorbed by the porous cupel, the surface of the silver becomes iridescent, a phenomenon which is caused by very thin films of oxide of lead. Immediately afterwards the silver obtains a splendid, bright surface which serves as a sign of its purity. The metal is then allowed to cool and to be taken away.

The process here described resembles closely, as has been already said, our cupellation method, the construction of the furnaces and especially its bottom being the only differences.

The ameliorated cupellation, known as Pattinson's desilvering process, by which even minim quantities of silver can be extracted with advantage, is as yet unknown in Japan.

The amalgamation process, which is used on a large scale in Freiburg and in America, has only found in late years practical application in Japan in those works which are erected by foreign mining engineers and metallurgists.

According to the government statistics, the production of lead and silver in Japan during the year 1877 was as follows:—

Lead, 5,289 cwt., valued at	Yen 28,435
Silver, 854,392 oz., " "	451,064

The estimate for the year 1874 was:—

Lead	3,700 cwt.
Silver	312,000 oz.

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It appears thus that the production of these two metals, although relatively small, is on the increase.

There were imported in 1878, 520,000 catties of lead (in pigs, sheets and tubes) whilst no lead was exported, thus showing that the actual production in Japan does not supply the demand.

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THE PREPARATION OF VEGETABLE WAX.

By Henry Gribble, Esq., of Nagasaki.

[*Read before the Asiatic Society of Japan on the 23rd December, 1874.*]

[94] The production of vegetable wax has always formed one of the principal industries of the province of Kiushiu, and the trees bearing the wax berries (called by the Japanese Haji-no-ki), grow profusely on the hill slopes and round the edges of most of the cultivated fields (excepting rice ground) of Higo, Hizen, Shimabara, Chikugo and Chikuzen, whereas in Satsuma they appear to be less prevalent.

The process of producing wax suitable for export to Europe is a tedious one, requiring the outlay of some capital on the part of the manufacturer, who has to keep the berries on hand for at least one year, and, in order to obtain a very superior product, does so frequently for six or seven years from the time of their being picked and sold by the farmers.

The berries ripen in October and November, and are picked by hand in the state shown by the sample marked No. 1 in the accompanying box. After exposure to the sun in that state for about five days they are packed in common straw bags and stored by the manufacturer in his [95] godown for periods varying from one to seven years. The average value of 10 piculs of the berries in this, their first stage, is ten *yen*, the farmer's selling price.

The manufacturer of wax can carry on his business all the year round, being interrupted only by excessive heat or excessive cold. His establishment consists of godowns for storing the berries, a large shed containing the pans for heating, the presses for extracting liquid wax,

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and as large a piece of levelled ground as possible for laying out the wax during its bleaching process. He establishes himself as near as possible to a supply of good clear water.

When sufficiently ripe, the berries are thrashed with bamboo flails and thus separated from their stalks. They are then crushed, as shown in the diagram, and reduced to the stage of sample No. 2. This crushing process, which can readily be done between thumb and finger, discloses a small, hard, red kernel surrounded by an apparently dry husk or fibre. The wax is contained in this fibre and only to a very small extent in the kernel, but it is not necessary to separate the two. They are then well *steamed* over an open kettle, the water in which is kept boiling by a wood fire underneath.

From the steaming sieve the mixture is placed "all hot" into the press bags, surrounded by bamboo rings to fit the aperture in the press, and as quickly as possible placed in the press, as shown in the diagram. Wedges are driven home by repeated blows of a mallet, and the liquid runs off into its receptacle at the bottom. Primitive as this style of pressing is, the result has not yet been improved upon by the trial of several hydraulic presses which have at various times been tried by the Japanese for expressing both oil and wax. Their own presses cost little, never get out of order, last long, require nothing but cheap coolie hire, and, in actual percentage of liquid extracted, do very nearly as much work as an expensive "Langue's" hydraulic press, requiring steam or other power to drive pumps which frequently require overhauling and repairing. After being fully pressed, the 'cake' or residue of the wax [96] fibre is broken up, again steamed and once more put through the press, thus yielding all its available wax.

Meantime the liquid quickly solidifies into a large block of a dark green, coarse and tallowy substance, which is at once boiled down and run off into small earthenware saucers, then assuming the appearance of sample No. 8.

The loss in weight of the manufacturer's original purchase of 10 piculs of berries has by this time amounted to 8.50 piculs. His first quantity was reduced to 8.80 piculs by the thrashing process, and of the liquid now produced from the press he has only one picul and a-half in the form of sample No. 8.

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In order to purify and bleach the wax for export, it now becomes necessary to re-boil it in its present stage mixed with water and ashes (either shell or charcoal ashes), and again run it off into large blocks. These blocks are then cut up into thin strips or stored, placed on mats and exposed to the air, during fine clear weather only, for a period of fifteen days, and occasionally sprinkled with water. The material is then again boiled down, mixed with water only this time, and run into large blocks. Once more are these blocks cut up into thin strips and again exposed to the air; this time for a period of about five days.

Again boiled down, with no water, the impurities rise to the surface and are skimmed off, leaving the residue to be run into saucers, assuming the shape and colour of sample No. 4, which is the vegetable wax as known to the European consumer.

The various stages from sample No. 8 to the final one No. 4 have further reduced the weight of wax from 1.50 piculs to 1.44 piculs, and the cost of this production now stands at about the following figures, viz :—

Original cost of 10 piculs berries	*yen*	10.00
Coolie hire, thrashing and crushing	"	1.28
Steaming and pressing	"	1.44
Waste of press bags and bamboos in pressing	"	0.82
Coolie hire during the bleaching process	"	1.20
Say.....	*yen*	14.24

[97] for the final production of 1.44 piculs, being the equivalent of about 10 *yen* per picul for the finished wax, without any allowance for interest on the capital used in the first purchase of the berries or in the plant and property of the manufacturer.

It only remains to be mentioned that the present market value of the finished wax is from 10.50 to 11 *yen* per picul when packed in boxes ready for export, and even this price, which shows only a loss to the Japanese manufacturer, is higher than the corresponding value of the same article in Europe, so that for the present, at least, this industry is not a profitable one either to the manufacturer or the shipper. The value of wax, however, varies considerably, and about three years ago it was worth for the London market about 20 *yen* per picul!

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Its use at home appears to be confined to the "facing" of candles and the manufacture of "vestas," and the frequent discoveries of cheaper substitutes for these manufactures materially affect the value of vegetable wax from Japan. For local consumption in the manufacture of Japanese candles there is always a considerable demand for vegetable wax in its unbleached state; but with the prevailing and increasing consumption of kerosine oil, even this outlet for the native industry is getting much restricted.

A reference to the four samples accompanying this paper, showing the various stages of vegetable wax from the berry to the finished saucer, and to the native diagrams (which, Japanese-like, are rather in caricature) showing some of the processes in its manufacture, will, I trust, clearly explain what may well be regarded as one of the chief industries of Japan.

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ASIATIC SOCIETY OF JAPAN.

[98] A General Meeting of the Society was held on Wednesday evening, 23rd December, at the Grand Hotel, C. W. Goodwin, Esp., V. P., in the chair. The minutes of the last meeting were approved, and A. O. Gay, Esq., of Kobe, was announced as having been elected an ordinary member.

The Committee on the Library reported that a new room had been engaged at No. 28, which would be open daily from 4 to 6 P.M. Whereupon Professor Ayrton suggested that although the Librarian might only attend from four to six o'clock, so that books could only be obtained during those hours, he would suggest that the room itself should be open all day and furnished with pens, ink and paper, so that it might be used by the members as a room for writing letters in, etc. He would add that the small room at the Grand Hotel which formerly was used as a Library by the Society, had been found by himself as well as by other members residing in Tôkiô, very convenient for such purposes.

Mr. Brunton read the following explanatory remarks, as supplementary to his statement made at the last meeting, in regard to the discharge of water from the rivers Rhine and Shinanogawa respectively :—

At the last meeting of the Society during the discussion which followed the reading of Mr. Lindo's paper on a trip to Niigata, I made a statement giving some particulars concerning the Shinanogawa, which river has its mouth at Niigata. I then compared the discharge of the Shinanogawa with that of the Rhine, and I have received from Mr. Lindo a letter taking exception to that comparison and asking me to make a correction of my statement in such a manner as I deem most suitable. As the matter occurred at the last meeting of this Society, and has appeared as part of its proceedings, I think that this is the proper time and place to bring the matter forward. Mr. Lindo informs me in his letter, that his paper, read by Mr. Boyle, contains statements relative to the discharge of the Shinanogawa, and also a comparison between it and that of the Rhine; but that that gentleman, in reading the paper, passed these over. His comparison and mine he says are antagonistic, not as regards the discharge of the Shinanogawa, because on that we agree, I may say, quite remarkably, but as regards the discharge of the Rhine; and he has been good enough to send me very elaborate tables of the discharge of the Rhine, which were, of course, not previously known to me, but which place that matter beyond a doubt. From these I find that the ordinary summer discharge of the Rhine near its mouth is over five millions cubic feet per minute, that its maximum discharge in floods is over twenty-three millions cubic feet per minute, and its minimum discharge is 2,700,000 cubic feet per minute. In my statement I gave the ordinary summer discharge as 900,000 cubic feet per minute, and the flood discharge as ten millions cubic feet per minute; that is to say the summer

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discharge as given by me is between one-fifth and one-sixth of what it actually is, [99] and the flood discharge between one-half and one-third of what it actually is. In justice to myself I must say that I procured my information from Beardmore's Manual of Hydrology, which book is considered as good authority by all English Hydraulic Engineers; but it is also necessary to say that on more carefully investigating the matter, I find that Beardmore's gauging was not taken at the mouth of the Rhine, but at Lauterbourg, which is some distance below Strasbourg. It is necessary, therefore, for me to correct the statement I formerly made, to the extent that the Shinanogawa discharges the same amount of water at its mouth as the Rhine does at Lauterbourg and that therefore the size of the two rivers cannot fairly be compared. In reference to the actual discharge of the Shinanogawa, it may be useful to have on the records of the Society a comparison of the results obtained by myself and Mr. Lindo, as these are so close that they assuredly leave no room for uncertainty regarding it. On the 21st June, 1871, I gauged the discharge of the river and found it to be 1,500,000 cubic feet per minute. During the months of June and July, 1873, Mr. Lindo took a succession of observations the mean result of which was 1,820,000 cubic feet per minute, the difference between this and mine being so trifling as almost to appear extraordinary. I calculated the basin of the Shinanogawa from government maps which were necessarily more or less inaccurate, making it to be 10,000 square miles in area. And taking the discharge of that area at seventy cubic feet per minute per square mile, which is the average discharge of twenty-five rivers in different parts of the world, gives the discharge of the Shinanogawa as 700,000 cubic feet per minute. Mr. Lindo has calculated the low water discharge at 720,000 cubic feet per minute, which two results verify each other surprisingly. From data procured from a comparison with other rivers, I estimated that the maximum flood discharge of the Shinanogawa would probably be about twenty times the latter mentioned discharge, viz., fourteen millions cubic feet per minute. Mr. Lindo from actual measurement has calculated the flood discharge to be 12,000,000 cubic feet per minute. Those calculations, made perfectly independently on different systems and verifying each other so closely, conclusively determine the size of the Shinanogawa, and I therefore have though it well to give the Society the information, which I do with Mr. Lindo's sanction.

Professor Ayrton then read a *resumé* of Dr. Geerts' paper on Lead and Silver; and in reply to a question from the chair, stated that he believed little or no quicksilver was found in Japan. As far as he was aware, all the quicksilver used in this country was imported from China, to which country it had been brought from Europe. Consequently the price of quicksilver in Japan was far higher than in England.

Mr. Brunton here remarked upon the black colour on the bronze image at Nara.

Professor Ayrton said in regard to the dark colour on Japanese bronze images referred to by Mr. Brunton, he believed [100] this was produced *not* by any

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admixture of quicksilver but by the bronze containing a considerable percentage of lead, in consequence of which the bronze was soft. After the vase, or other bronze ornament, was finished, the outside was strongly heated, and when on the point of liquefaction it underwent a rapid oxidation, and thus a dark uniform coat closely adherent to the rest of the metal was formed. For the particulars of this process he would refer the society to the careful analysis of Japanese bronze, made some months back by M. Morin and communicated by that gentleman to the French Academy.

Dr. Syle mentioned the New Almaden mines, near San José in California, as furnishing a large supply of quicksilver.

A paper, contributed by Mr. Gribble of Nagasaki, on the Production and Manufacture of Vegetable Wax in Japan, was read by Mr. W. H. Smith, who exhibited specimens and diagrams illustrative of the subject.

Dr. Syle remarked on the similarity of the process employed to that used in China for the extraction of oil from the bean. As to the employment of the wedge rather than the screw, it was noteworthy that although the Chinese were acquainted with the latter and used it for some purposes, they never seemed to employ it as a mechanical power. The experiment made at Newchwang for obtaining the bean-oil by foreign machinery had not been successful.

Professor W. E. Ayrton said he could see why the wedge was used in preference to the screw both in China and Japan for extracting oil as stated by Dr. Syle, since theory showed that in the absence of very great power a greater crushing effect could be produced by sudden blows on a wedge than by the continued pressure of a screw. He thought that probably the considerable initial expense necessary to be incurred in the purchase of a hydraulic press might be the reason why they were so rarely used in this country for the extraction of wax; since as far as he could judge from the diagrams lying on the table the apparatus at present employed was of the rudest description and therefore cost but very little. He would be glad if Mr. Smith could inform them in what way Japanese vegetable wax differed from Chinese wax.

Mr. W. H. Smith expressed his surprise that the hydraulic press was not more used; and read the following remarks of Sir H. Parkes from a note written on the subject of the paper:

"I am sorry to see that the wax cannot be produced at a paying price, but this must be partly attributable to the very high charges of manufacture. I cannot help thinking that it might be produced at a much less cost with more industry and read hard work on the part of the Japanese. I was told in England that it could be largely used in the process of printing manufactures (cottons) if a large and steady supply could be reckoned on, but as it came to market only by fits and starts and in unreliable quantities, manufacturers were obliged to use other material. I am sorry if this industry should fail, for the Japanese have but few available products for export, and they must work harder before they increase them."

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TRANSACTIONS

OF

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THE ASIATIC SOCIETY OF JAPAN.

VOL. III. PART II.

(From 13th January, 1875, to 30th June, 1875.)

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ASIATIC SOCIETY OF JAPAN.

The Third Annual Meeting of this Society was held at the Grand Hotel on Wednesday evening, July 14th, 1875, at half-past eight o'clock.

The chair was taken by Sir Harry S. Parkes.

The Minutes of the last two General Meetings having been read and confirmed, the Annual Report of the Council was then presented as follows:

REPORT OF THE COUNCIL OF THE ASIATIC SOCIETY OF JAPAN, FOR THE YEAR ENDING JULY, 1875.

The Council have much satisfaction in reporting that the advantages have never been more marked, or the progress of the Society more encouraging than during the past twelve months.

In evidence of this they refer to the fact that it has been found expedient to issue an extra number of the Society's Journal, containing Transactions, etc., up to the end of 1874. The contents of this, and of the supplementary number, which is about to be issued, are as follows:

I.—Useful Minerals and Metallurgy of the Japanese; by Dr. Geerts of Nagasaki.

II.—Observations on the Bay of Sendai; by Captain St. John, H.M.S. *Sylvia*.

III.—Useful Minerals and Metallurgy of the Japanese; by Dr. Geerts, of Nagasaki.

IV.—Description of a Trip to Niigata, along the Shinshiu-road and back by the Mikuni Pass; by J. A. Lindo, Esq.

V.—Useful Minerals and Metallurgy of the Japanese, by Dr. Geerts, of Nagasaki.

VI.—The preparation of Vegetable Wax; by Henry Gribble, Esq., of Nagasaki.

VII.—The Revival of Pure Shintô; by E. M. Satow, Esq.

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VIII.—Itinerary of Two Routes between Yedo and Niigata; by Capt. Descharmes.

IX.—Constructive Art in Japan; by R. H. Brunton, Esq.

X.—A Description of the Coast between Oshima and Toba Harbour; and an Excursion among the Forests and Mountain Ranges of the Province of Yamato; by Capt. St. John, R.N.

XI.—On some Japanese Legends; by C. W. Goodwin, Esq.

XII.—Observations on the climate of Nagasaki in 1872; by Dr. Geerts.

XIII.—Notes of a Journey from Awamori to Niigata, and a visit to the mines of Sado; by J. H. Gubbins, Esq.

XIV.—Notes Collected in the Okitama Ken, with an Itinerary of the Roads leading to it; by C. H. Dallas, Esq.

XV.—On an ancient Japanese Classic; by W. G. Aston, Esq.

XVI.—On the Legacy of Iyeyasu; by Prof. W. E. Grigsby.

XVII.—On the Yonezawa Dialect; by C. H. Dallas, Esq.

On the evening preceding the Transit of Venus a valuable lecture was delivered to a large and interested audience, by Professor W. E. Ayrton of the Imperial College of Engineering, at Yedo; and on the occasion of the visit of the *Challenger* to Yokohama, Professor Wyville Thomson favored us with a lecture, in which he gave a *résumé* of the results, as far as ascertained, of the deep sea sounding and dredging in which he had been engaged. Such lectures are of great value, and deserve the best acknowledgments of the Society.

Another token of progress is seen in the fact that it has become desirable to hold Regular Meetings alternately at Yokohama and at Yedo, a request being made from the latter place that the sessions of the Society be held there as often as once a month; which suggestion the Council take this opportunity of bringing before the Annual Meeting for its consideration.

The pressing want of the present moment is a good, large room—conveniently situated, and free of charge—in which all the Society's Meetings might be held, its business transacted, and its Museum and Library made accessible to members and strangers.

The Treasurer's Report, herewith submitted, shews a balance in hand of $317.32.

The number of new members elected during the past year is 51, making the present number about 200.

The number of Exchanges effected with other Societies has much increased, and copies of the Journal have been sent by request to Trübners in London, and also to New York, for sale.

The additions to the Library and Museum during the past year have been few—a fact much to be regretted. Some improvement, however, in this respect may be expected if the Society shall adopt the suggestion, which the Council now lays before the meeting, of increasing the Annual Subscriptions to $10.

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The following is the Treasurer's Report.

RECEIPTS AND EXPENDITURE,
1st July to 31st December, 1874.

Dr.

To Balance in hand 1st July	$586.22
" Subscriptions collected from 21 members at $5	105.00
" Subscriptions to Library	5.00
" Amount received for sale of Transactions	15.00
" Sundry receipts	1.43
	$712.65

Cr.

By Printing, Stationery, Advertising, etc	$482.16
" Books purchased	10.00
" Librarian's wages	20.00
" Grand Hotel rent of room, etc	43.75
" Cost of Cabinet for insects	12.00
" Diagrams, Professor Ayrton's lecture	32.42
" Sundries	9.00
" Balance	103.32
	$712.65

31st January to 30th June, 1875.

Dr.

To Balance on hand, 1st January	$103.32
" Subscriptions collected from 160 members at $5	800.00
" Amount received for sale of Transactions	6.00
	$909.32

Cr.

By Printing, Stationery, Advertising, etc	$214.00
" Books purchased	111.94
" Librarian's wages	20.00
" Cost of forwarding Transactions to London	21.09
" Rent of room at No. 28, 7 months at $20 a month	140.00
" Furnishing rooms at No. 28	49.31
" Grand Hotel, refreshments, etc.	20.00
" Fire Insurance $400 to 20th April, 1876	8.00
" Sundries	7.06
" Balance	317.32
	$909.32

To Balance deposited in Chartered Mercantile Bank of India, London and China $317.32

JOHN THURBURN,
Hon. Treasurer.

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The following resolutions were then passed:

1.—*Resolved*, That the Report of the Council be accepted, and the thanks of the Society tendered to the retiring officers.

Proposed by Professor Summers, seconded by Principal Dyer.

2.—*Resolved*, That a Committee of ordinary members be appointed to take into consideration the present state of the finances of the Society and to consult with the Council concerning the same—the said Committee to consist of Mr. Cargill, Dr. Purcell, Principal Dyer and Mr. Thomson.

Proposed by Professor Grigsby, seconded by Dr. Wheeler.

3.—*Resolved*, That the subject of holding semi-monthly meetings at Yokohama and Yedo alternately be referred to the same Committee.

Proposed by Mr. Aston, seconded by Mr. Wilkin.

4.—*Resolved*, That the mode of electing the Council be considered by the above Committee and reported on at the next General Meeting.

Proposed by Mr. Wilkin, seconded by Mr. Thomson.

The Committee appointed to nominate the officers for the ensuing year recommended the following, who were unanimously elected.

President.—S. R. Brown, D.D.

Vice-Presidents.—Sir Harry S. Parkes, K.C.B.; C. W. Goodwin, Esq.

Councillors.—C. De Groote, Esq.; J. C. Hepburn, Esq., M.D.; A. J. Wilkin, Esq.; W. G. Howell, Esq.; Edwin Wheeler, Esq., M.D.; David Murray, Esq., Ph. D.; Rev. E. W. Syle; W. G. Aston, Esq.

Cor. Sec.—W. E. Ayrton, Esq.

Rec. Secs.—John Y. Henderson, Esq., Yokohama; Professor James Summers, Tokio.

Treasurer.—J. Thurburn, Esq.

A vote of thanks to the Chairman having been carried unanimously, the meeting separated.

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ITINERARY OF THE COUNTRY TRAVERSED BETWEEN THE 3RD AUGUST AND THE 8TH SEPTEMBER, 1874.

BY CAPTAIN DESCHARMES, CHASSEURS D'AFRIQUE.

[*Read before the Asiatic Society of Japan, on the 13th January, 1875.*]

My principal objects in this journey were to travel northward in the direction of Lake Inawashiro; thence to pass through the province of Aidzu; to reach Niigata by the course of the river which flows from Lake Inawashiro; and to descend the West coast southwards to a point favourable for reaching Fujiyama through the mountainous province of Shinano to Kôfu, and from Fujiyama to reach Tôkiô by one of the well-known roads.

The 5th, 6th, 7th, 8th and 9th days were dedicated to Nikkô, the itinerary and features of which are well known.

From the 10th the itinerary may offer some interest to those who may wish to visit less frequented parts of the country.

10th August.—From Nikkô to Imaichi—a well-known road. From Imaichi the path tends northward towards Ohowatari (2 *ri*) through a picturesque country. The river Daiyagawa (the torrent of Nikkô) is passed, afterwards that of Kinugawa, which is much ravined, [2] deep and rapid, and abounds with a fish called *ai*. Pack-horses cannot pass this stream, and the next station on the left bank being 30 *chô* from the river, a considerable delay in the journey takes place. Halt for the night at Funaniyu, a village of small importance.

11th August.—From Funaniyu to Ishigami.

From Funaniyu to Tamaniyu (1 *ri* 28 *chô*) about 8 *chô* past Tamaniyu is a rapid torrent which can only be passed by fording. It is about 30 metres broad, and is often impassable. It is called by the country

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people the Arakawa. From this torrent to Taka-uchi (2 *ri* 10 *chô*) the road is wooded, picturesque, and the stream swift; the general direction East.

From Takauchi to Ishigami 8 *ri*. Two unimportant streams may be forded, and just before reaching Ishigami, a considerable stream, often impassable, named Hokigawa, running from N. to S., has to be crossed. The general direction of the road is N.

From Ishigami to Kiwatahara, 5 *ri*. The last three *ri* traverse the great plain of Nasunohara. This plain appears about ten to fifteen *ri* long and from three to five broad, and is covered with grass and fern, like all the *hara* in Japan. There are few or no trees, and little water or trace of cultivation. No houses are to be met with until Kiwatahara, a village consisting of a few cottages. One *ri* before arriving there the traveller is still among the mountains. Beautiful streams of fresh water are to be met with, and vast dry beds of torrents, indicative of terrible storms, and bearing enormous blocks of stone and uprooted trees. From the plain of Nasunohara Mount Tsukubasan may be seen towards the S.E., and the vast chain of the Nasusan running from S.W. to N.E.

From Kiwatahara to Muronoi, three *ri*, over a very bad road, and with a second *hara* to traverse. Before reaching the village of Murunoi, a considerable torrent named Nakagawa is reached and must be forded. From Muronoi to Yumoto, 2 *ri*. Leaving Muronoi the gorge of the Nasusan is reached. The road becomes extremely difficult, in some places very muddy, sometimes steep and [3] covered with rocks. The gradients are very sharp. In fine weather the neighbouring summit of the Nasusan may be seen with fine effect, the view embracing a vast expanse towards the S. W. and E. and presenting a magnificent *ensemble*.

18th August.—Halt at Yumoto.

The village of Yumoto consists of some 30 houses built solely to receive the bathers of the summer season. A torrent of mineral water runs through this open gorge from S. to N. at the foot of Mount Nasu. The only street of the village is in this gorge and runs parallel with the stream. Wooden pipes convey the water into the middle of the street by two conduits, the one bringing cold, the other hot water. Five square tanks of two compartments occupy about 30 metres of

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the road between these two streams. The mineral water contains sulphur in small quantities and alum. The temperature is very high (from 60° to 62° C.), but it can be reduced in the tanks in a few minutes to a more moderate level by a simple and ingenious system of cocks, by which the streams of hot and cold water can be regulated at will. These mineral waters are called the Shika-no-yu (the waters of the stag). Tradition relates that the first persons who made use of them were led thither by observing a deer which had been wounded by hunters, its instinct leading it to resort to the waters.

The village was formerly much larger than at present. It is overlooked, in front, by several temples sufficiently well preserved, at least externally. It was built at about 800 metres distant from its present site. But a terrible flood in 1857-58 destroyed the whole village, and in order to avoid the repetition of a similar catastrophe, it was rebuilt higher up the valley. It contains only about a hundred inhabitants, its sole trade consisting in a little sulphur and some vegetable products used in dyeing. In winter a few deer are killed, and though rarely, bears of a small species. It is a good game country, and possesses woodcock and pheasants. In the neighbouring stream *ai* and *yamame* (trout) are caught.

[4] To the north of the village, and after an ascent of a few minutes, the tourist is brought face to face with Nasu, a beautiful and imposing mountain. It consists of three principal peaks, one of which, called Tansu-ga-take, is an extinct volcano. The Nasusan is, properly speaking, a well-defined volcano. It still emits smoke and subterranean sounds. The crater appears to be about 200 metres in diameter. The sides are arid and bear traces of eruptions of lava. The last eruption is said to have taken place in the year 1780. The ascent to the crater is easy; and that of the neighbouring peak, Bishamon,[1] can also be made. This station would afford an agreeable resort in summer; the air is fresh and the nights are cool; but the bad state of the roads would for a long time render access to it difficult for the majority of travellers, and almost impossible for European ladies.

Another hot spring station is to be found at a place called Shiwo-

[1] One of the seven gods of happiness.—*Edd.*

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bara, towards the West of Nasu, and to the N. E. of the road from Nikko to Aidzu, which passes not far from here. It is possible to go direct from Nasu to Aidzu by the neck of the Santagôri, but the roads are very bad by the confession even of the natives.

14th August.—From Yumoto to Ihidoyô.

Leaving Yumoto, the left bank of the river is passed, and the traveller descends the slopes E. of the Nasu. For 4 *ri* these slopes are well wooded but the roads are muddy, full of ruts and impracticable after rain. Not a house is to be met with until the miserable hamlet of Tsunago is reached, consisting at most of 70 souls, and absolutely destitute of resources. From this point to Shirakawa, a great uncultivated plain must be passed, marked with the peculiar characteristics of the *hara:* the distance is 2 *ri* 15 *chô*.

At Shirakawa the great northern road from Tôkiô to Sendai and Aidzu is regained. Shirakawa is a large town of about 2 kilometres in circumference, with a large trade in silk. It has an ancient *shiro*. At some distance to the North the road branches off to the N.E. towards Sendai, and N.W. towards Aidzu. In this latter direction, and at 2½ *ri* from Shirakawa is to be found the village of Ihidoyô—18 to 20 houses.

Leaving Ihidoyô the road takes a general direction northward. The country is very undulating and well wooded, and the following villages are passed:

Kamigoya	1 *ri*, 20 *chô*.
Makinouchi	1 " 15 "
Naganuma	1 " 2 "

At the latter point you leave the Hon-kaidô (or main road)[1] if it is desired to go direct to the Lake Inawashiro. Formerly a *shiro* was standing in this important place, which is one of the gates of the province of Aidzu, either by the direct road or by the defile which leads to the Lake Inawashiro. To reach the latter point it is necessary to proceed by way of Takinohara (1 *ri*) with one relay of horses, passing through a pretty valley variously cultivated, bounded on the N.E. by the mountains of Iwaki. On dismounting, the defile or neck of Ohiwake is entered. The road follows, at a rounded angle, a stream which runs from N. to S. Both banks are covered with thick wood rendered

[1] Known as the Ôshiu-kaidô.—*Edd.*

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useless by want of roads. The right bank is formed by a somewhat remarkable mountain, Hachiman-ga-take, the ascent of which is prolonged for about 2 *ri*. Nearly at the summit a single post-house is to be found, called Ohiwake, and at 1,000 m. above this point one of the finest views in Japan may be enjoyed. It extends towards the South and South-east, with an immense horizon bounded by the lofty mountains of Sendai and Oshiu.

Still continuing to climb these steep slopes, the traveller leaves, with many regrets, this magnificent country and arrives at the boundary which divides the waters of the Pacific from those of the Sea of Japan, a venerable gate and a feudal barrier informing him of his entrance into the province of Aidzu. This boundary is hardly reached before a rapid descent towards the north is commenced, and a view is gained as superb as that which has just been left behind. A succession of the mountain chains of Aidzu and Sendai extends to the North. At a [6] turn of one of the angles of the path, Lake Inawashiro is seen in a hollow, shining like a mirror in the last rays of the setting sun. But the steepness of the slopes which lead to the foot of the valley soon eclipses this panorama, and after three *ri* of easy walking we arrive at the village of Nakaji, close to Lake Inawashiro.

Nakaji is about three kilometres from the eastern extremity of Lake Inawashiro. Taking boat on the lake it may be traversed towards the N.E. as far as the point where it flows into the basin of Aidzu, from whence Wakamatsu may be reached on foot. But strong westerly winds are frequent on the lake, and at such times the passage is almost impossible in the wretched boats ordinarily employed. Under these circumstances the route to Aidzu must be regained by crossing from Nakaji to Fukura.

Inawashiro is one of the largest and most picturesque lakes in Japan. It is fed by two streams which flow from the East and North-east and measures about 4 *ri* in all directions. It is surrounded by mountains of no great elevation, except that of Bandaisan on the North shore, one of the highest in Aidzu. On the same shore there are a few villages where salmon and *masu* are caught, and a fish, peculiar to certain lakes in Japan, called the *akahara* (red-belly). A small trade is carried on between Wakamatsu and the different points of the lake. But

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the total absence of roads in the neighbouring regions renders all commercial movement difficult, and it may be said of this place, as of the whole of the interior of Japan, that the growth of public wealth would derive considerable impulse from the opening of good roads. The main roads (called *hon-kaidô*), like that of Aidzu, are the only ones laid out and those are only intermittently repaired. These even are detestably bad in respect of the inequality of the surface and the steepness of the slopes. Their reform is a work of paramount necessity to the Japanese Government and would be productive of the best results.

The shores of Lake Inawashiro may be recommended as an agreeable summer resort, although it should be stated that they are entirely destitute of all resources for European life. The temperature is cool, and in winter the streams are frozen for several weeks.

If desirous of regaining the Hon-kaidô, the traveller must take the route from Nakiji to Fukura, which is undulating and picturesque. From Nakaji to Harajiku, by Fukura, there are five *ri* to traverse, over a good country. The mountains assume a bolder character as you approach Wakamatsu.

The slopes from Mount Kanehori and Takizawa are steep. Towards the North lie the vast plain of Aidzu and its capital Wakamatsu, which is reached after a march of 8 or 9 *ri* from Nakaji,—a fatiguing walk on account of the disintegrated silex which forms the soil for several kilometres before reaching Wakamatsu.

Wakamatsu is the capital of the ancient province of Aidzu. It is a considerable town, but possessed formerly a far larger population than at present. The Castle of the Princes of Aidzu, situated on a hill at a short distance from the town, has been destroyed and razed to the ground. The town is situated nearly in the centre of a great oval plain, of from 10 to 12 *ri* in its longest diameter, and constituting what is properly called the Aidzu country. This plain is fertile, cultivated with rice, and watered by many rivulets which descend from the surrounding mountains, and which unite in the principal stream which flows out of the Lake Inawashiro.

Besides Lake Inawashiro, there are in the basin of Aidzu two other lakes or lagoons, the waters of these three lakes uniting to form the river which flows towards Niigata. A fourth lake named Kosenura,

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which is said to be situated on the N. E. slope of the mountains of Nikkô, also discharges its waters into the same basin, which also carries a large volume of water in the Japan Sea.

The mountains which surround the plain of Aidzu are majestic, and many are very lofty, among others the Bandaisan to the North-east, the form of which is remarkable; Miyojingatake to the South; and the Itoyosan [8] to the West. This latter mountain, even in summer, is not exempt from snow, and furnishes ice which is cried about the streets of Wakamatsu.

At a distance of one *ri* from the town there is a very celebrated place of resort, named Higashiyama. It is a collection of tea-houses in a deep ravine formed by a stream of considerable volume. From the clefts in the rocks which form the right bank, streams of hot water flow; and many resort to the spot to enjoy the cool air and take the benefit of the warm springs, which are of a temperature of about 50-55° C; but they have neither taste nor smell, and do not appear to contain any salt.

On leaving Wakamatsu for Niigata, the western route must be taken, which is a metalled road running through rice fields, and in as detestable a condition as can be imagined.

From Wakamatsu to Bange—a considerable commercial town—is 3 *ri* 10 *chô*.

From Bange to Funato, 1 *ri*, 20 *chô*. At the latter place a bridge of boats must be passed, constructed similarly to those used in Europe. The aspect of the river is picturesque. On leaving it the neck of the mountain called Tabane-matsu-tôge has to be attacked by a very steep ascent of from 5 to 7 kilometres. From the summit, on which there are two tea-houses, a fine view may be enjoyed. The descent is by an abrupt and picturesque path towards Nozawa, a large town which must formerly have been much frequented. The road, which preserves a a generally western direction, passes over the remarkable shoulder called Kurumatôge.

In all these mountains the lacquer tree (*urushi-no-ki*) is found, which is tapped by horizontal incisions in the trunk. It is almost useless to say that the aspect of the country from Wakamatsu is picturesque in proportion to the badness of the roads, and the steepness of the slopes. These conditions are unfortunately universal throughout the

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whole of the interior, and if the eye is pleased the lower limbs are tortured. The tourist should therefore be well shod, and fortified with a patience which does [9] not belong to all Europeans. From all these points of view the country situated between Nikkô, Aidzu and Niigata deserves special mention.

The river becomes navigable at Tsugawa, which, in virtue of this position, has become the important centre of a commerce and carrying trade. From this point Niigata can be reached by water in a day when the stream is strong. The distance by land between the two places being from 18 to 20 *ri*, an estimate may be formed of the rapidity of the stream, here called the Tsugawa. When the water is slack, a halt must be made for the night and Niigata reached the next day, the native boatmen being justly unwilling to descend the river during the dark hours. The rapidity of this form of locomotion is not without some disagreeables. For 4 or 5 *ri* after leaving Tsugawa a number of rapids must be passed, and the river, being hemmed in by steep rocks, is much of a torrent, studded with rocks, and all the skill, coolness and constant practice of the boatmen are required to avoid grave and frequent accidents. The boats are long and narrow (7 *ken* by 8 to 4 *shaku* broad), a kind of canoe in which it is well not to indulge in any unnecessary movements, and two men, standing, one in the stem the other in the stern, direct a course in which the smallest error may cause the wreck of the whole freight upon a rock. After three or four hours of this exercise, the mouth of the defile is reached, the river becoming broader and more calm as its mouth is reached; but the sand-banks and eddies render the navigation dangerous at night.

The overland route from Tsugawa to Niigata at first follows the left bank, crossing the very difficult pass of Iwaya. It crosses the river afterwards at a ford, and winds about in a bend on the right bank. This road is only taken in going from Niigata to Tsugawa; the ascent of the river by water occupies from five to seven days, and it is impossible to pass its rapids without great trouble. This part of the basin of the Niigata river is contiguous to coal and copper mines, rich enough, it is said, but not productive on account of the want of good roads.

[10] The approach to Niigata is dull and desolate, the open plains and environs being sandy and uninteresting. The town is very regularly

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built, the streets are clean, well-kept and rectilinear, and a number of canals keep the town in communication with the river. The population is estimated at over 50,000, and represents the entire commercial importance of all the West. It is at the same time the centre of pleasure and recreation for the whole of the district. The climate seems to differ sensibly from that of the other side of the Pacific; the heat is very great in summer, and the winter is cold and long. As is usual on this side of the Japan Sea, the houses are all fronted with a covered verandah, which allows of exercise when the snow covers the streets. The roofs are built at very open angles and weighted with heavy stones. The typhoon which passed over Nagasaki and the South on the 20th August, 1874, ended its course northwards, appearing in Niigata on the 21st from 6 p.m. to 11 p.m. The maximum intensity was during the hour between 8 and 9 p.m. Every house was more or less injured, but the destruction was less severe than at Nagasaki on the night of the 20th. The typhoon swept the whole coast from south to north on the 20th and 21st.

The most serious bar to the ultimate development of Niigata is the existence of a very dangerous sand-bank at the mouth of the river. Besides the waters which come from Aidzu, which, on account of their volume, bring down vast quantities of sand, the river Shinano, the largest in Japan, flows through Niigata, gathering on its course all the waters of the central chain of the west, which again by their vast volume contribute to the blocking up of the port of Niigata. An attempt has been made to remedy this condition of affairs by the construction of a canal, which, however, has been abandoned on account of its defective plan.

The island of Sado, noted for its gold mines, is about 15 *ri* from the coast. Most of the junks in which the traffic between this island and Niigata is carried on, put [11] into port at Teradomari, south of Niigata, to escape the dangers of the bar.

A detailed description of the island of Sado and of the works there, which are under the direction of Europeans, will shortly be given by recent explorers. Although Niigata is an open port, it contains very few European residents (5 or 6 in 1874). There is no doubt that the making of carriage roads from this point to Aidzu would contribute greatly to the extension of business.

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From Niigata to Take-no-machi the road follows the shore, passing sometimes through sand, sometimes through paddy-fields or pine woods, and offering little worthy of note.

From Take-no-machi the road, diverging from the South, runs through rich paddy fields towards the East, skirting a bold ridge which projects into the sea, and the very steep declivity of which does not admit of an easy road by the shore. The sea is again struck to the West and South-west, the road traversing the remarkable pass called Saigatabatoge, from the summit of which a splendid view of the rich plains of Echigo in the back-ground can be enjoyed, while the Sea of Japan and the island of Sado lie in the foreground. On emerging from this pass the little port of Teradomari may be seen, a fishing village about two kilometres in length and well situated. (It would make an agreeable watering place.) From Take-no-machi to Teradomari the distance is 5 *ri*.

Leaving Teradomari there is no other road than the sea-shore, which is of fine sand with a gentle slope more agreeable to the bather than the pedestrian. According to circumstances the tourist can follow the coast on foot, or engage a small vessel to go southwards coasting along with a fair wind. Idzumozaki (4 *ri*) may thus be reached, a very large fishing village, 4 kilometres long, and of considerable commercial activity. There are some pleasant tea-houses near the shore, and the beach is very agreeable.

The route continues as before, and the snow-clad summits of Echigo-Tateyama are to be seen towards the southeast. [12] To Hishiya, 8 *ri*, where an important annual horse-fair is held in the fifth month of the year. In 1874 2,000 horses were brought there.

To Arabama (2 *ri*) a considerable fishing village, with a miscellaneous trade. To Kashiwazaki, 2 *ri*, an important commercial town with a population of 12,000. There was a sharp skirmish here in 1868, and many houses still bear marks of the strife.

It is better to go by sea from Kujiranami (the shipping port of Kashiwazaki) to Imamachi, if the weather be favourable.

On arriving at Imamachi, there is a dangerous bar at the mouth of the river, which can only be crossed when the wind is in any other direction than northerly. In good weather this voyage is pleasant and

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rapid, and in the distance may be seen the peaks of Tateyama in the province of Echigo. The foot of the Yoneyama is passed, a mountain of fair altitude, on the summit of which there is a temple which can be very distinctly seen from the sea. This temple is only frequented or inhabited from the 4th to the 8th month. Near Kujiranami there are some deep caverns in the cliffs, which may be entered by boats. All this coast, from Teradomari to Imamachi, is well populated, commercial, and possesses a good climate. The nights are cool, and the shore well adapted for sea-bathing. The beach is soft and remarkable for the absence of shells. The men are vigorous, tanned by the sun and sea-air, and devoted to fishing. The women are strong and capable of the hardest toil such as is usually undertaken by men. Imamachi is a large town with a population of from 6,000 to 8,000 souls, built on the left bank of a river, which conduces to a flourishing trade.

From Imamachi to Takata 2 *ri*. Leaving the coast, the road opens towards the south, crossing a vast and fertile valley and leaving to the right in a south-easterly direction three peaks rather remarkable for their form and dimensions, and known as Miyokosan, Gochisan and Yakeyama, the ascent of all which appears difficult.

Takata is a town containing from 30,000 to 40,000 souls, [18] the ancient seat of a *daimiô*, and still important from a commercial point of view. It is one of the great centres of production and supply of the west side of the main island, and particularly of the province of Echigo.

From Takata to Sekigawa.—Route by causeway in the middle of the rice-fields from Takata to Arai 8 *ri*. Arai is a large village of from 4,000 to 5,000 souls. From Arai the road rises by gentle but continuous slopes. Passing Nihongi you cross the very picturesque torrent of Sekigawa, of which the two steep banks must be climbed by a zigzag path which has a pretty effect. Sekigawa is a wretched village, but the *honjin* is good.

Immediately after passing this village you climb a stiffish pass called Kuma-saka-toge, and on descending from this pass come upon the pretty village of Nojiri, on the border of a little lake of the same name.

The lake of Nojiri is very picturesque and well situated. The

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form of it is somewhat curved and its length appears to me not to exceed a *ri* and a-half. It is embellished with little well-wooded islands, and has but few fish. On its banks tower the three summits of Kuroshime yama.

From Nojiri to Murei (8 *ri*) the road traverses some pleasant woods, and redescends to Murei with tolerably rapid slopes. You then find yourself by the side of a great torrent which empties itself into the river of Shinano.

Leaving Murei you enter the mountainous part of the pass called Kodama-zaka. From the top of this pass you behold the vast panorama of the basin of the Shinanogawa, peopled with numerous and rich villages, and the view is bounded to the south by the high mountains of the Shinano district. The whole of this region appears rich and cultivated.

As soon as you descend into the valley you meet a long succession of villages, nearly contiguous, which end at the temple of Zenkôji, 4 *ri* 20 *chô* from Murei. This temple, which has no other merit than that of being very large and situated upon a rather towering hill, is one of the most celebrated and most frequented in Japan. The [41] aggregate of the villages of Mina, Naganomura, etc., which surround it, may furnish a population of 50-60,000 souls. This agglomeration of people seems to be flourishing, and the superstition which attracts devotees to this sanctuary is more earnest than ever.

From Zenkôji to Sakaki.—From Zenkôji to Tambajima, 1 *ri* 12 *chô*, the road traverses the plain and river Shinano. This river, as has already been said, empties at Niigata into the Japan sea. It has its source to the south of lake Suwa, runs there from S. to N., afterwards turning towards the N. W. to Niigata. One may follow the right bank as far as Niigata, but this, which is called the Nagasaki route, is very bad, and for this reason it is preferable to proceed down the shore from Niigata to Takata, according to the itinerary here indicated.

From Tambajima we may shape our course either towards Matsumoto or directly to the east in order to reach Lake Suwa. This latter route is preferable because we thus avoid three very difficult passes, which are in the direction of Matsumoto.

We turn consequently to Shinanoi, 2 *ri* 10 *chô*, and thence, follow-

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ing the valley of the Chikumagawa an affluent of the Shinanogawa, arrive at Sakaki, 4 *ri*, by a picturesque road, traversing fertile and well-peopled districts.

The plain before Shinanoi has been the theatre of battles famous in the history of Japan (about 1520?) between the Princes Uesugi Kenshin and Takeda Shingen. Two *ri* further on than Shinanoi and about 1 *ri* from the road and on the right, a series of pretty high mountains called Obasute-yama may be seen, at the foot of which is a remarkable, large stone, about 20 inches high, at the side of a little pond, which tradition represents as guarded by a fantastic dragon, and other absurdities which merit no further mention. Before Sakaki the river Chikumagawa makes a way for itself across the mountains, by a vertical fissure very remarkable and having a fine effect.

From Sakaki to Nagakubo.—The road follows the [51] right bank of the Chikumagawa taking a straight direction to the east. After three *ri* we arrive at Ueda, a very great centre of the production of silk, and containing from 40,000 to 50,000 souls.

From Ueda to Honya, 2 *ri* 18 *chô*, we follow the last offshoots of the groups of Asamayama. On leaving Honya the road returns to a southerly direction, following the valley of the torrent called Yodagawa. On this very picturesque road one may in returning enjoy the view of Asamayama, the crater of which emits (and did so notably in 1874) abundant vapours. Finally we rejoin the Kisokaidô at Nagakubo, after a march of 4 *ri*, which though interesting, is painful, the soil of all these roads being always denuded (at least in 1874).

From Nagakubo to Shimonosuwa.—We proceed from Nagakubo to Wadajiku, and thence to Shimonosuwa (total 8 *ri* 18 *chô*) surmounting the passes of Ueda and Waga by a picturesque road; but one of the most difficult that one can travel, excepting the last part, which is good for about 1 *ri* before reaching Shimonosuwa. At about this distance, one has a delightful view of the lake.

Stay at Shimonosuwa.—The village of Shimonosuwa is built at a short distance from the lake, which unfortunately is not seen from the larger of the houses. In this village are found hot springs, and three principal ones may be mentioned, which are:

1.—Watanoyu, near the principal post-house (*hon-jin*); the

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baths are clean, and are even closed to the public; the temperature is 48°. The inhabitants pretend that these waters contain silver, and they call them Ginyu.

2.—Koyu, containing alum. Temperature very high.

3.—Tagayu, temperature very high; there are also the springs of the Kunôsawa at the other end of the lake. These are also much frequented by the inhabitants. The climate of the borders of the lake is always fresh; on the 27th in the morning the thermometer indicated 12° 5 at 6 o'clock. One might make a summer visit here in circumstances favourable to health. In winter, according to the statements of the inhabitants, the cold is very [61] severe, and one might cross the lake upon thick ice for 30 or 40 days (January and February). The fishing is excellent and it is said that the country abounds in game. On fine days one may see from the middle of the lake Fujiyama, which appears in all its height through a large opening formed at the S. E. by the mountains which encircle the lake.

The lake is not large, 2 *ri* by 1 *ri*, but it is well situated and surrounded by remarkable mountains; it empties its waters into the Pacific, by the large river Tenriyukawa, which runs toward the S.E. and has its outlet at Hamamatsu (province of Enshiu) into the Pacific.

This river is one of the most important in the island of Nippon. It traverses mountainous regions almost impassable; its course is torrent-like, and presents rapids which are descended with some danger. The navigation on it is considerable.

From Shimonosuwa to Kamitsutaki.—From Shimonosuwa to Kaminosuwa, 1 *ri* 18 *chô*, we follow the north bank of the lake. The view of the lake and surrounding country is picturesque; to the east the far off summits of Hidanotakayama, which may be seen, preserve the traces of snow in their fissures.

Kaminosuwa is a moderate sized village, situated at the end of the lake, where is still to be seen the castle of the Prince who formerly lived in the district. From Kaminosuwa to Kanagawa (3 *ri* 18 *chô*), a pretty route, through a moderately well-cultivated country. From Kanagawa to Kamitsutaki (3 *ri*) a hilly road with fine horizon. Fujiyama, which commands the whole landscape, is nearly always visible.

From Kamitsutaki to Kôfu.—From Kamitsutaki to Tsuburai (5 *ri*

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10) the road, which is very hilly, follows almost entirely the course of a torrent (an affluent of the Fujikawa). The fields are traversed by streams of water, very rapid and beautifully clear.

After leaving Tsuburai near Nirazaki the road goes into the bed of the torrent itself and becomes very often impassable (2 *ri*, 18 *chô*).

[17] Nirazaki is a large market town of 10-15,000 souls, situated at the entrance of the rich plain of Kôfu. On leaving this point you quit the mountainous region properly so called, and survey the vast plain of Kôfu, rich in agricultural products and silks.

The road as far as Kôfu, 8 *ri*, 18 *chô*, is very good, and has been repaired anew in 1874, April. This distance is traversable by jinrikisha. Kôfu was in olden times a Tokugawa town; its castle still exists. It is situated in the basin of an affluent of the Fujikawa, at the foot of the huge buttresses of Fujiyama and of the central mountains of Shinano, in the midst of a country rich by nature. The population is about 19,000 or 20,000 souls.

There is a considerable silk-trade, and a silk manufactory on the European plan has been started by the care of the Government. There is also a small trade in rock crystals, which come from the mountains of Shinano, and in the autumn a large trade in grapes and fruits; in fact nearly all the grapes eaten in Tôkiô and Yokohama come from this place.

The wretched state of the roads and the absence of vehicles make themselves greatly felt here. Thus, for instance, a basket of grapes which is sold for 25 sen in Kôfu costs more than a *riyo* delivered in Yedo. There is, however, a direct road from Kôfu to Yedo, called the Kôfu-kaidô, but it is especially bad at the passes of the mountains. The Fujikawa, on one of whose affluents the town of Kôfu is situated, is a small though rather important stream, whose fertile basin lies to the eastward of Fujiyama. It empties itself into the Pacific, eastward of Kambara.

The navigation is very dangerous, being in the midst of steep and jagged rocks which form numerous rapids. It is impossible to descend the river except in very narrow canoes, and without great danger of capsizing. On the right hand of the river is to be found the celebrated pilgrim-resort of Minobu.

From Kôfu to Kawaguchi.—If however you wish to go straight

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towards Fujiyama, it is necessary to leave the basin of the Fujikawa, and to take the road from Kōfu [18] to Numadzu. This latter is a small seaport of the Pacific situated on the bay of Suruga, from which fish is sent to Kōfu and the adjoining country.

The first part of this road is through the plain, from Kōfu to Izawa (1 *ri* 18). From this point it enters the mountains by ascents which are rather easy as far as the pass called "Jiurozaka," which leads to the village of Tonaki (4 *ri*).

On leaving this place you climb very steep ascents without interruption, called the pass of Mizakatôge, from the summit of which you enjoy a magnificent view of Fujiyama and of the little lake of Kawaguchi at the foot of the pass. You redescend by gradual slopes to the little village of Kawaguchi situated at the border of the lake of the same name.

The pass of Mizaka is one of the most difficult to climb, but one of the most interesting in the centre of the island of Nippon.

Lake Kawaguchi is about 1 or 2 *ri* (in length), and stellar in form. It is sustained by a torrent coming from the pass of Mizaka; has no visible outlet, and does not seem to discharge its waters anywhere. Here is found however the *masu*, an excellent kind of salmon, which is generally found only in rivers communicating with the sea. There are eight lakes of the same kind around Fujiyama, the greater part of which have no visible outlet.

From Kawaguchi to Subashiri.—On leaving Kawaguchi the route follows the bank of the lake; this is also traversable in a boat. All this passage is charming.

Hence to Kamiyoshida, a large market town at the foot of Fuji-yama. Thence to Yamanaka, on the border of a little lake Mikka-dzuki, which latter resembles in shape, as its Japanese name indicates, a crescent of the moon. At length, one *ri* from Subashiri, one descends a rather steep pass, and finds oneself at the foot of Fuji-yama and the point.

The huge waste lands which stretch between Kawaguchi and Subashiri are generally rather monotonous. One [19] finds a poor vegetation and occasionally volcanic plots of ground.

From Subashiri to Kiga.—The ordinary route from Subashiri to

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the coast is by Mishima; but you may proceed direct to Kiga (Valley of Miyanoshita) by Gotemba and pass of Senko Kubara, which is very high and one of the worst roads possible to be seen.

From Kiga to Tôkiô.—The rest of the return journey to Yokohama and Tôkiô is well known, therefore we limit ourselves to the account given above.

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CONSTRUCTIVE ART IN JAPAN.

By R. H. Brunton, Esq.

[*Read before the Asiatic Society of Japan on the 13th January, 1875.*]

[20] In the paper which I read before the Society on this subject last year, I said that, if agreeable to the Society I would continue the subject on another occasion.

In that paper I gave a description of the evidences of constructive ability displayed by the Japanese before they had availed themselves of the assistance of foreign experts. The continuation of the subject I then thought might suitably consist of a description of the improvements which these have succeeded in effecting. In setting myself to this task, however, I find it is one which is involved in considerable difficulty. In the first place the results which have been attained are so few and of so limited a nature that there is but little to be said concerning them, and in the second place the efficiency or practical advantages of such results are subjects of so debatable a character that, to treat of them from that point of view would form a paper hardly suited to a society of this kind. If therefore, in attempting to fulfil a promise which I [21] formerly made, I have not succeeded in forming a very valuable contribution to the proceedings of the Society, the difficulties surrounding the subject which I have alluded to above are my only excuse.

In the minds of the modern Japanese there seems to be the same desire for the adoption of a dwelling constructed after a European model, as for the adoption of European clothes. They argue, with a shew of reason, that the one is necessary to the other. Thus when sandals or clogs gave way to boots, and the loose flowing robes to the tightly-fitting

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European dress, it became necessary to discard the old system of squatting on mats and to adopt wooden floors with carpets, and to sit on chairs and at tables. Europeanized dwellings are therefore now common. The style of building most generally adopted throughout the country in these new houses is a bad copy of the houses to be found in the European settlements. It is almost unnecessary to describe these. They, however, display novel points in the practice of house building which are worth mentioning on that account only. The foundations consist of a stone wall generally about 8 inches thick and 2 feet high. On this wall is laid a wooden sole-plate which is about 6 inches square, and into which the wooden uprights forming the walls of the house are mortised. The uprights, also about 6 inches square, are placed from 2 to 3 feet apart, so that when they are still uncovered they appear like a forest of posts. There are very thin laths placed longitudinally along the uprights at distances of 6 feet or so apart, which are secured to them by wooden pins. Diagonal struts or ties are very seldom used, and the stability of the building is therefore dependent on the stiffness of the different joints in the framework, assisted by the nails used in the different parts of the erection. The roof is formed of timbers very much larger than is required for strength, and is laid with mud and tiles much in the same way as I have described in my former paper as is adopted in Japanese temples. Inside, the houses are generally lined with planks three-eighths of an inch thick, on which wall-paper is placed, the ceilings of the rooms being executed in the [22] same way. In some of the better class of houses, however, the walls and ceilings are lathed and plastered, but this is by no means general. Outside the walls there are sometimes fixed laths to which square tiles are nailed—the joints of the tiles being pointed with plaster; sometimes the walls are plastered without any tiles, and in those houses which are intended to be of the best description, thin stone flags, of a thickness of about four to eight inches, are built on one another and kept in their places by small iron dogs attached to the woodwork. In some of the houses iron stove-pipes are let through the walls surrounded by a stone, but the more pretentious have fireplaces and chimneys erected with stone in their interiors. These are usually about five or six feet square at the base, are generally badly built, and as they project through the roofs they must be in some cases thirty or

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forty feet high. They can only be kept upright by the floor or roof beams which project against them, and are a constant source of dread and danger.

This is the new species of building common in Japan, and foreigners are doubtless responsible for it: even at the present day very few houses in the foreign settlements are built after a more secure or substantial style, and in Japanese hands it has, if anything, become worse. When foreigners first arrived in this country they may have had reasons for adopting this method of construction. 1st, It is somewhat similar to the Japanese method, and those who commenced building might have been glad to adopt it on that account, as the work would there be more or less familiar to the only workmen who were available at the time. 2nd, It has the advantage of only requiring the very cheapest and most easily procured materials, and so is well suited for temporary purposes or for hasty erection. 3rd, It is supposed by some persons to be the best construction to resist earthquakes on account of its elasticity and on account of the wooden framework preventing the outside lining of stones or other covering from being precipitated inwards on the occasion of a shock. The first reason in its favour does [28] not now exist in such strength as formerly, because, although really efficient workmen are still very difficult to procure, there are now in this country many Europeans of experience who, by their superintendence and direction can efficiently cause to be executed almost any species of building. For merely temporary buildings it may still be, on account of its cheapness, the best, but if the construction is to have any pretensions to be a lasting erection, or one which has to afford effectual protection from outside disturbances, I have no hesitation in saying that the system is the most uneconomical. From the fragile nature of the materials which compose the outside casing, whether these are stone flags, tiles or merely plaster, the walls are in want of constant repair, and are never water or air tight. The wooden framework from its insufficient covering decays with great rapidity, and it is in all points excessively and dangerously weak. The third reason in its favour, viz., its efficacy to resist earthquakes, is one which opens out a large field for discussion on which I may have something to say further on.

In copying this system of construction, therefore, I need not say that,

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in my opinion, the Japanese have been led into an egregious error. And it is really a pity to see such buildings as the new Custom House and the New Town Hall in Yokohama, the new Government offices in Yedo, all of which should be buildings of real stability and durability, built on this principle. These erections have all some pretensions to architecture; they have each cost very large sums of money, and being efforts at improvement in the way of construction, it is most unfortunate that the system adopted was not one formed on a more sound and substantial basis.

Since the great fire which happened in Yedo in 1872, the minds of the local authorities there have been greatly exercised in reference to the construction of buildings which will afford greater resistance to the spread of fire. A very creditable effort has been made in the new Boulevard at Yedo—where small brick houses have taken the place of the slight wooden erections which are general in [24] all Japanese towns. These new buildings are built with brick which has been coated with Portland cement plaster. The walls of the houses are of course perfectly uninflammable, and fire-places with properly constructed chimneys are placed in each wall. These houses present no perfect immunity from fire, but there can be no doubt that from the use of uninflammable material in the walls, and by a well-devised system of construction they offer great checks to the spread of fire, and the danger of taking fire is immensely lessened. The buildings have evidently been designed so as to retain as far as possible the Japanese system of house with open fronts and movable partitions; they are two-storied and contain four small rooms, and have a small verandah in front supported on brick columns. They seem to be a very suitable species of building for the class of Japanese occupying them, and they most certainly present an infinitely better example of building to the people than the European houses which I have just described.

The principal and most important move made by the Japanese Government towards introducing into this country a better appreciation of the art of building and, at the same time, furnishing the country with those results of the ingenuity and labours of our great engineers which have revolutionized the civilized world, is the establishment of the department of public works and the prosecution of the undertakings under its

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care. The construction of two lines of railway after the English model cannot fail to instil into the minds of the many Japanese employed in connection with them, the advantages of the principles of building adopted in Europe. Although one of these lines does not unfortunately present many features worthy of imitation, the other one in the excellence of the details of the workmanship upon it, whether in brick, stone, or iron, supplies a model of the greatest value. The lesson that these works afford the Japanese should be of the greatest use to them. The various natural products of their country have in them been moulded, formed and brought into combination with each other so [25] as to form structures of precisely the necessary strength and of the most certain durability.

The graving docks and various other works at Yokosuka also present to the Japanese another phase of constructive art from which they may learn the properties and use of another species of material. While the Lighthouses, though humble specimens of construction, and labouring under the disadvantage of being placed in such situations that few people see them, afford, I hope, their quota of information.

That the Japanese have not benefited so fully as they might by the lessons given them in the carrying out of such works, I think, can be safely affirmed. This has been occasioned more by a restlessness of mind and want of application than by want of ability. Their natural presumption of knowledge is proverbial, but in addition to this there has not been established to my knowledge any definite system of education among workmen. The methods of manufacture in all countries by means of which the cheapest, the best finished and only reliable articles are produced are well known to consist of keeping each workman confined to one very narrow branch of labour. In this way he becomes expert in that particular line and is able to produce work with a rapidity and of an excellence otherwise unattainble. In building, a stone mason, a bricklayer or a carpenter is obliged to serve a weary apprenticeship of 5 or 6 years, and after that has been completed a long probation of many years on a merely nominal pay before being considered or trusted as an efficient workman. In Japan, on the contrary, bricklayers or masons are procured ready made; a Japanese carpenter is a mason one day and a bricklayer the next. And the introduction of the system of

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apprenticeship—by which the intelligence and energy of youths are brought to bear on one particular branch of labour—has not, as far as I am aware, been thought of. This defect may be due in a great measure to the exigencies of the country, which has only lately commenced to adopt these improvements, but I fear it is also occasioned by the restlessness of disposition [26] which is a well known feature in the Japanese character.

The materials used for building have been but slightly developed within late years. Wood, which still maintains its supremacy as the principal and the most commonly-used building material, has not improved in quality. It is of a most treacherous character as at present to be purchased in the market, this being due to a want of care in felling the timber, in seasoning it and in drying it. No trials have yet been made so far as I am aware of the strength, durability or weights of Japanese wood, so very little can be added to the information I gave in my former paper concerning it. There can be little doubt, however, that the extra demand for timber caused by the commencement of public works of magnitude, and by a desire for larger and more extensive edifices is causing a denudation of the forests of the country. The rapidity of decay in the material itself and the wholesale destruction to which it is exposed by conflagrations keep up a steady demand for this, the stock building-material of the country; but if to this is added the demand caused by the various improvements which have been instituted, the supply is unable to keep pace with it. With a recklessness which I fear is a characteristic of the people, the forests are being taxed beyond their powers—timber itself has increased in cost within the last five years to twice or thrice its former price—and fears not unnaturally arise of certain climatic changes springing from the clearing of large tracts of country of their former forests.

Bricks were introduced by foreigners some years ago and are rapidly getting into extensive use. They do not, however, as yet attain to that excellence of manufacture which make them at all a desirable building material. The process of brick-making, like all other work requiring skill, can only be carried out to perfection by experts. While the Japanese are well acquainted with the manufacture of various porcelain and terra-cotta articles for use or ornament, and succeed in this most [27]

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admirably, the making of bricks, so as to turn out both a cheap and reliable article, is a process requiring such entirely different methods of work that their knowledge in the former is not of much avail to them. The selection of the clay, its puddling and the shaping of the bricks are at present all done more or less carelessly and without method, but it is in the burning of the bricks that their principal defect lies. Their kilns are formed in the shape of a cone, and are, when charged, generally filled to the top with bricks. A wooden fire is inserted at the bottom and the heated air is allowed to find its way through the large mass of bricks to the top of the kiln. Those bricks at the bottom, we naturally find, are overburnt and cracked while those on top are quite insufficiently burned. A very small proportion only of really reliable bricks is therefore got from each kiln. I am informed that very excellent bricks are procured in Kôbe and Osaka, which are made at Sakai, but I have not had an opportunity of testing these. I have, however, put bricks from various other parts of the country to the ordinary tests, and the results are anything but satisfactory.

The ordinary bricks in use in London absorb after immersion in water not more than one-fifteenth of their own weight, and they withstand pressure of 800 lbs. on the square inch. The ordinary bricks made in Yedo absorb one-fifth of their own weight of water, and will not stand more than 300 lbs. per square inch; that is to say, they are three times as porous as they ought to be and less than half of the strength they should be. Bricks made in various other parts of the country shew almost the same results. The best which I have had opportunity of trying were those made at Hakodate; they stood fully the standard crushing strain but absorbed far too much water. Such bricks are in my opinion quite unfit for building purposes. Their actual strength, when new, may be sufficient for the small erections built in Yokohama, but their porosity renders them liable to rapid disintegration, and to actual rapid destruction from severe frost, while houses built of them must under any circumstances, suffer from continually [28] damp walls. A very excellent instance of the character of the Japanese bricks may be seen at Hakodate, where a series of large godowns recently erected by the Kaitakushi are in ruins, owing to the splintering and reduction to powder of the brickwork in their walls, caused by one winter's frost.

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A partial remedy for the badness of the bricks may be to coat the walls with lime or cement plaster, but even with this I fear that sufficient moisture will find its way to them as to have a very deteriorating effect upon them. Another and a very grave reason against the ordinary use of brickwork as at present carried out in this part of Japan is the almost useless character of the lime mortar. Bricks in a building are held together by the lime mortar between them, and if this mortar does not possess the necessary connecting qualities each brick is dependent on itself, and the edifice which is constructed of them is deprived of almost its entire stability. Good mortar requires clean sharp sand and newly burned lime. Such sand in the neighbourhood of Yokohama is difficult to procure and is almost never used, and the Japanese seem to have a pride in using only the oldest lime, which from long keeping has entirely lost its virtues.

The system of construction best suited to withstand earthquakes is a consideration which should always hold a prominent place in the design of any erection in Japan. I have not been able, though I have made considerable efforts to do so, to procure any information either to verify the particulars I gave in my former paper regarding earthquakes or to make additions to that. While we are perfectly aware, therefore, of the liability of the country to shocks of destructive violence, we are not aware of the nature of the shocks or the localities in which they may be expected to be most severe. It is to be hoped, however, that with the assistance which the Japanese Government now possesses, both as regards instruments and professional men, that before long we may have a regular system of observations affording us this information. I have formed the opinion that the heavy [29] roof and the light framework in Japanese erections are ill-suited to withstand these shocks, and I believe my opinion to be sustained by the truest principles of mechanics. This, however, is hardly the place to enter into a disquisition upon that subject. I am also of opinion that a solid erection, properly constructed, will afford the greatest safety during an earthquake and at the same time is the only one which will give reasonable security against fire, wind or the other natural disturbances. An appliance has been devised by a well known English engineer for the purpose of counteracting the disturbing force of an

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earthquake, the principle of which is very simple. It was said by him that the movement given to the foundations of a building is transmitted with accelerating force to its summit, and that to destroy this the simplest method was to make a break in the continuity of the structure. The designer, therefore, proposed that buildings should be made in two parts, the lower part to be firmly embedded in the earth, the upper to rest on balls which are made to roll in inverted cups. A sudden movement in the lower part would not, then, be transmitted to the upper on account of this break or joint in the structure, and the experiments made shew that in point of fact this theory was perfectly correct. He procured this idea from seeing in Japanese drawings the uprights of their houses resting on round stones, imagining this to be done in order to give them as slight a hold of the earth as possible. But from enquiries I have made this does not seem to have entered the minds of the Japanese, and the only way they can account for the uprights being placed on round stones is to keep the wood away from the moisture of the ground and because round boulders are more easily and cheaply procured than square stones. The impracticability of this scheme, which however deserves a fuller trial than it has yet had, arises, in my mind, from the fact that a house resting on balls is liable to be swung and rocked about in gales of wind to such an extent as to render it unfit to live in. I may mention that the tables on which the apparatus of some of the [30] Japanese lighthouses rest are constructed with this joint, but they have been found to be unsuitable for the reason I have just stated, viz., that when touched or trod upon they shake and roll too much. It is quite possible, however, that some alterations might be effected on the design to obviate this difficulty, and if this were accomplished there can be no doubt that it would afford great immunity from earthquake shocks. Any scheme which will afford this should be welcomed in Japan, but at the same time it is in my opinion a great mistake to sacrifice the whole comfort and the safety of dwellings from their dread enemies fire and wind to a supposed protection from so remote a contingency as a severe earthquake is in Japan. The building most truly suitable is one which to the fullest extent provides a protection from both these disturbances.

Wooden houses, on the supposition that they are best during

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earthquakes, are not well fitted to withstand the other disturbances to which they are much more frequently exposed—and solidly constructed houses, while they are less inflammable, and less liable to damage from bad weather, whether they are well calculated to resist an earthquake shock or not, at all events have this advantage, that they will always afford their inmates time to escape. The more solidly constructed a building is the longer it will remain standing, even though solidity is no perfect protection against the rage of an earthquake.

The matter of cost is an important one in regard to works of this kind, and there is not an unreasonable fear that to erect a solid building means a large expenditure. This, under present circumstances in Japan, is probably the case, though not to that extent which might be imagined. The present want of good material and the dearth of efficient workmen enhance the cost of good work, but we must hope that these hindrances will soon be removed, and that in a short space the towns of Japan will consist of something better than rows of tinder-boxes.

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ASIATIC SOCIETY OF JAPAN.

[31] A General Meeting of the Society was held on Wednesday evening, 13th instant, at the Grand Hotel, C. W. Goodwin, Esq., V. P., in the chair.

The minutes of the last meeting were approved, and it was announced that the following gentlemen had been elected ordinary members of the Society since the last general meeting: Dr. Elmore, Chargé d'Affairs for Peru, Messrs. J. C. Hayllar, Q. C., Hongkong, J. Smedley, E. S. Benson, and S. Cocking.

The Rev. E. W. Syle then read the "Itinerary of two routes between Yedo and Niigata" by Captain Descharmes.

Sir Harry Parkes observed that Captain Descharmes had described a very interesting, and a very extensive tour through the Northern, Western, and central Provinces of Japan. He regretted that, owing to the want of a good map, those who had heard the paper read would not fully profit by the information it contained until it appeared in print. The same want had been felt on previous occasions, and would continue to be felt when papers of travel were read before the society. He would therefore suggest the preparation of a map of Japan on a large scale, to be exhibited at the meetings of the society, which should show in a manner that would at once catch the eye, the Provinces and Kens, principal towns, mountain ranges, rivers, roads, and other important geographical features of the country, as far as these were at present known or might become known. The routes described in the papers read before the Society might also in some instances be marked upon it. Its use would then be felt, not only when papers were being read, but also by travellers planning a tour or an excursion, and wishing to profit by the experience of those who had preceded them. He believed such a map could be constructed at small expense, and he was satisfied that it would prove of great utility to the Society.

Mr. Cargill, in seconding the suggestion, remarked that any foreign maps of Japan he had seen were very incomplete, while the Japanese maps, some of which were very excellent, had for those who could not read Japanese, all the characteristics of the old maps of Africa—a mere coast outline on a sheet of blank paper. Mr. Cargill also enquired what the expense of preparing a map would be, and whether the funds of the Society could afford the outlay, or whether a special subscription would be necessary.

Mr. Syle said that the matter had been under consideration. He thought that if the Society determined on constructing such a map as that referred to, Mr.

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Brunton should be requested to superintend the execution of it. He was afraid, however, that the funds of the Society would not admit of the undertaking at present.

In reference to what had fallen from Mr. Syle, Mr. Brunton said that he would be glad to superintend the execution of large maps for the use of the Society. He would propose that they should be made to a scale of 2¾ miles to an inch [32] and should be in six sheets, viz: one sheet for the island of Yezo,—one sheet for the Main Island, to extend as far as Lake Inawashiro—second sheet for Main Island to extend as far as Lake Biwa. Third sheet for the remainder of the Main Island. One sheet for the island of Shikoku, and adjoining coast. One sheet for the island of Kiushiu, and adjoining coast. The probable cost of executing these completely and in a finished manner would be about $400, the principal items in which sum consist of the Chinese, or Japanese, draughtsmen. Then maps might be enlarged from Japanese maps, many of which are of very considerable accuracy. In fact so accurate are they that some of the present charts used by navigators are compiled from them.

The maps so made would be useful only for hanging on walls, and tracing journeys on with a pointer. They would not be suitable for measuring from, or for photographing or otherwise copying.

Mr. Brunton then read his paper on "Constructive Art in Japan."

Mr. Cargill acquiesced in the observations made by Mr. Brunton on the indifferent material used in building, such as spongy bricks, lime that had lost its essential quality, and indifferent timber which began to rot as soon as it was put to use, and that for the grotesque but pretentious specimens of the foreign style of architecture in Yokohama, to which he had drawn attention in the New Town Hall and Custom House, he might have added the new Post office, and the British Consulate, the latter being especially hideous. As for the adaptation of buildings to resist earthquakes, and the general use of timber in Japan for the temples and other costly structures which, from their antiquity, seem to have resisted shocks that had proved so disastrous to many towns, he presumed that timber was deemed well suited for resisting those terrible visitations. In other countries the same idea prevailed. He had heard people in San Francisco taking comfort from having so many of their houses built of timber, and being on that account more safe. The town of Wellington in New Zealand is wholly built of wood, private dwellings, public buildings, and churches, including even lofty steeples, that neighbourhood being subject to constant severe vibrations of the earth, and no other building material being deemed safe.

Sir Harry Parkes was of opinion that the light and elastic style of Japanese architecture had no reference to the necessities, or apprehensions occasioned by earthquakes. It is a primitive style of building taken chiefly from the Chinese, who are said to have followed the tent as their model in the long sweeping roof, supported, not on walls but on timber uprights. The Japanese have no experience

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of solid structures. To them in building timber is a material of first necessity, and scarcity of supply would be very seriously felt. It is probable that although the country within districts easy of access has been denuded of its timber, belts of forest still remain which cannot at present be made available for want of means of transport. [33] Forestry laws and the construction of roads evidently demand the serious attention of the Government.

In answer to the Chairman, Mr. Brunton said that from the various authorities which he had consulted he could not discover that the system of lightness and pliability in the construction of houses had been adopted in any country subject to earthquakes—except Japan. Certainly in South America and South Italy the buildings which were now erected were of a most solid description—and those men who were authorities on the subject had, so far as his investigations had carried him, unanimously given a preference to strength as distinct from lightness or elasticity. In a building wanting in strength, its overthrow becomes certain when the velocity of the earthquake wave is such as to produce oscillation sufficient to destroy the equilibrium of its upright parts. But in buildings where the mass or inertia is great, and the connection of the different parts of the walls is proportionately good, oscillation is checked, and it may be said that overthrow is impossible—except of course in cases of irregular upheaval or cracking of the earth's surface, or when the foundations of a building are destroyed. In such buildings fractures may certainly be caused at weak places in the walls, but their great advantage is, that on account of their immunity from overthrow, they give their inmates time to escape. The great destruction of buildings in Lisbon, Naples, and elsewhere by earthquakes has been shewn to be entirely owing to the faulty character of the masonry—there having been instances in the vicinity of the latter place where the front half of a wall has come down leaving the back half standing, shewing that there was no band or connection whatever between the two. In regard to concrete, he believed that no substance could be found more suitable for building in earthquake countries, and he founded this belief on the grounds that there was no joint whatever in a concrete wall, that the whole building was as one stone, and that the connection between its parts was equable and thorough throughout. He could not conceive that a well-built concrete house could possibly be overthrown so long as its foundations were left intact.

Mr. Syle observed, concerning the supposed absence of any system of aprenticeship among Japanese workmen, that in China there was no such deficiency; but on the contrary, that every workman—especially every bricklayer—seemed to be provided with two apprentices. As to the supply of timber in China; it had become the custom in some districts to cultivate hill-sides, and crop them annually strip after strip, for thirty succesive years, at the end of which time the first portion will have grown up again. For building purposes, large quantities of fine lumber, brought across the Pacific from Oregon, were disposed of at Shanghai. Also a good deal of magnificent hard wood brought up from the Straits, in the Singapore junks.

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Prof. W. E. Ayrton remarked that he was not sure whether it had yet dawned on the Japanese that porosity was an [34] objectionable character in bricks, since he remembered when, some months back, he visited Tsukudashima, where bricks were manufactured in considerable quantities by the convicts there, the Governor of the prison pointed out with great glee how a stack of black bricks absorbed pailful after pailful of water as it was thrown over them. He thought all must agree that Mr. Brunton's severe criticisms of the new buildings in Tôkiô and Yokohama were most just, especially as regards the pastry-cook style of architecture, the one most in vogue which produced residences like sugared cakes, of layers of white plaster hiding a framework of unseasoned and ill-jointed wood. The builders of these houses appeared to have exercised the greatest ingenuity in combining the flaws of Japanese dwellings with the vices of second-rate European suburban villas; for where, in the modern Japanese house was the graceful roof-curves, the quaintly-moulded corner tiles, the grand entry with its curved scrolls, the picturesque eaves, the ingenious arrangement of rafter, and decorated panels of the Daimiô's home? Whilst warmth and solidity, so rightly esteemed as most important characteristics of European buildings, were conspicuous by their absence. He could scarcely agree with Mr. Brunton that the new brick houses in the Odôri of Tôkiô, the main street of the metropolis of Japan, were satisfactory; since he considered the pretensions to the classic style displayed in the architecture had produced a result not more happy than the absence of all architecture in the more flimsy structures previously referred to. He doubted whether Europe's ancient Gothic architects would approve of the new mongrel red brick buildings of Tôkiô, that bear so strong a resemblance to national school-houses. In addition, to a race like the Japanese who loved brightness and sunshine, who passed the greater portion of their lives in the open air, he could imagine nothing more distasteful than the small windows, absence of verandahs, and general gloom of a mediæval building. What was really wanted in this country at the present moment was an architect who had thoroughly mastered the varieties and styles of the European schools of architecture, and who, in addition had also studied the ingenious development of wooden structures in the United States. Such a man after arriving here would with similar industry study Japanese buildings and their extreme suitability, in many respects, to the climate of the country and the tastes of the people. He would then be in a position to evolve buildings that did not as now combine the evils of all styles, but which would, instead, bear evidence that the best points of native and imported art had been judiciously selected. We might then have buildings possessing the beauties of the yashiki and the conveniences and comforts of a first-rate English building.

The Meeting then terminated.

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AN EXCURSION INTO THE INTERIOR PARTS OF YAMATO PROVINCE.

By Capt. St. John, R.N., H.M.S. "Sylvia."

[*Read before the Asiatic Society of Japan on the 17th February, 1875.*]

[35] Before beginning a short account of an excursion I made in connection with the survey of this part of the coast, I should like, considering the little that is known about the east side of the provinces of Kii, Yamato, and Ise, to draw a slight sketch of the whole coast-line from Ōshima, in the extreme south, to Toba in the north.

Ōshima, in Lat. 34.27 N., Long 135.52′ E., with its two excellent lights, one on the east point of the Island, the other on Shiwo misaki, the extreme south and turning point of the Kii peninsula, is now well known to Europeans who have travelled between Yokohama and Kôbe. Vessels also coming from Hongkong, or the ports of China, very frequently make Ōshima, either by day or night, thanks to the two good lights mentioned.

From Ōshima the coast trends N. E. for about 10 miles, to Arundel point, just inside and to the southward of which is an excellent anchorage for small vessels, called Urakami; again immediately round and to the north of the point is another equally good but small harbour, named Katsura. The famed waterfall [36] Natchi no taki, 275 feet high, is only 4½ miles from here, and strong hot sulphur springs are found close to the village, and within the bay. So strong and effectual are the waters, that seven days bathing is professedly ample time to cure the worst form of scabies; and fourteen for other diseases more serious than ordinary cutaneous affections.

The waterfalls—for there are three—follow at a short distance from

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each other, in the following order. The lowest is 275 feet high and has a clean drop, coming over a mass of rock which forms the back of an amphitheatre-shaped mountain. It falls into a deep pool, then rushing amongst great boulders for some distance, finds the more level valley further on, and reaches the sea just behind Katsura. On following the stream for 300 yards or so from the top of this fall, the second is reached. This, like the first, falls over a slab of rock seventy feet or so in height, into a beautiful clear pool, which is shut in all round; and so near do the trees approach overhead, growing out and almost hanging from the rocks, that at first sight they almost appear to touch. The only outlet to this extraordinary place for a river to find its way to, is its own course, as it flows on to the great fall. Above the second fall there is another about fifty feet in height. They are all very beautiful, but the second is as wonderful as it is beautiful.

Near the lowest fall is a cluster of temples, with a grand old avenue leading up to them. One of the *sugi* trees, which had been cut down, I made out to be 283 years old; which agreed within a few years of the date given by the Japanese. Here the head of all the Shintô priests resides and the principal temple is built.

A short way north of Katsura, the previously broken and rugged coast line gives place to a long straight stretch of sand and pebbled beach, which runs N. E. without a break for 15 miles, butting up against a steep promontory, the beginning again of a wild, broken line of coast, which, still keeping the same N. E. direction, continues 70 miles to Toba, at the entrance of the Owari Gulf. Harbours and bays with water too deep for anchorages, [37] are found all along this 70 miles of wonderfully beautiful coast.

Shingo, a town eight miles north of Katsura, is the only place of any importance whatever, and this mainly from its trade in wood, which is brought down by means of no less than twelve rivers, which joining in one, near Shingo, form a short way above the town a fine stream of water, with ample depth for large junks, which, however, can only cross the bar during calm and favorable weather. The population of Shingo is about 4000.

A few *ri* up the river there is a coal-mine. The coal is brought to Katsura in boats, stored in large quantities, and shipped off to

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Yedo and other places. I took in 50 tons for trial, excellent in appearance, but it simply refused to burn; when mixed, and so assisted, with some different kind I had on board, it did fairly well. It is very hard and heavy, and free from dust.

None of these provinces grow sufficient rice for their own consumption, but this is not surprising considering that the only rice cultivation of any extent is near to Singo, where a plain of some square miles extends back from the beach to the foot of the mountains.

There is one other place worthy of note, more for the employment of its people than for its extent or importance. This is Koza-ura, five miles W. of Ôshima, at the mouth of a river called Kozagawa. Wood and whale's flesh are the two articles of export, and as the mode of catching this leviathan of the deep may not be without interest, I will try and describe the novel method which is pursued. I believe the species of *cetacea*, which finds its way into the open deep bays, and in the different eddies, near points, caused by the great Kuro Shiwo, rushing past the coast, to be the *Balena Mysticetus*, but this I cannot with any certainty affirm; it is not unlikely that other smaller kinds are often caught. In passing I may mention that in the east of Yeso I have seen on numerous occasions the little known and rare species the high-finned cachalot (*Physeter Tursio*). As soon as whales are seen, basking about the surface, or lazily moving [38] near the coast, which very frequently happens during the winter months, several boats put off in pursuit armed with *nets*, and rough iron spikes stuck in the end of long bamboos. As nets are rather curious implements to capture these great monsters with, a description of those which are employed is necessary.

The mesh is about a yard square; size of rope about three inches. It is made up in large squares, each side being 30 or 40 feet deep. These squares are attached to each other lightly at the corners and middle. The length of the whole net is about 200 feet, which is carried in two boats, and on getting within distance of the whale, the boats separate, dropping the net as they go, and again meeting on the other side, enclose the whale. If this is successfully done, and the great brute disturbed, he almost invariably strikes the net, as he dashes off. Whichever square of net he strikes breaks away from the rest, and now the faster he goes the more it clings to him. He dives, plunges and kicks

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to no purpose, and soon becoming confused and worried, returns to the surface, when the same process of surrounding him with another net is gone through. Again he dashes off only to become more confused and frightened, when coming to the surface once more, tired and worried, he is pierced with the primitive harpoons mentioned, until killed. He is then towed on shore, cut up, and sold for food—and very repulsive food it looks.

Owashi Bay, one of the numerous indentations I have mentioned as occurring along the coast, is situated about half way between Ôshima and Toba. It affords excellent anchorage for vessels of any size, particularly in one of its long narrow arms, where the most complete shelter, easy of access in all weathers, is found. It was from here I had to go inland, to reach the summit of the highest range of a multitude of ranges of mountains, of which the Yamato province consists. Grand and beautiful mountains they are. The peak of Ô dai san is seen from seaward, when clear, for a great distance, the mountains north and south of it gradually rising and [89] meeting in its flattish double-looking top. On enquiry I ascertained that it was possible to get there, but the inhabitants at Owashi knew little or nothing about it, beyond fabulous stories of wild beasts, and the wonderful distance to be seen from its summit.

Having made arrangements for a ten days' trip, I started to make the ascent on the 15th October, 1874. The first five miles led up the course of a beautiful clear stream, which winds down between steep abrupt mountains, 2000 feet high, and falls into one part of Owashi Bay.

We soon left the level,—for in this five miles we had not ascended 50 feet—and for 5½ miles toiled up a single mass of mountain, to a height of 8118 feet. Of course the path zig-zagged, turned boulders, crossed streams, sometimes found a flattish spot, then wound round spurs, and, lastly, emerging on the peak, opened on a magnificent view. What surprised me regarding these mountains was the mass of rock, the huge stones and little soil of which they are composed, and at the same time the wonderful exuberance of the *flora*.

Lowest down and particularly in sheltered valleys or dips, the *sugi* trees flourish, growing so thick and close together that it is all but perpetual night underneath their yellowish green tops. The *sugi* vies

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with the *ko matsu (Pinus massoniana)*, which is the commonest and most utilized tree in Japan. The *hinoki* appreciates the same sheltered situations, but is never grown so thickly together. It also flourishes at the very summit of the hills and mountains, as high at least as 5000 feet. But these trees are self-sown, and always isolated, growing straight and strongly, having evidently outrun or beaten their immediate neighbours, which appear stunted and twisted. Next to these,—I am speaking of the *coniferæ*—comes that lovely tree *Picea Firma*, the native *momi*. It is a true cedar in every way, and in appearance resembles that of Lebanon. Only one more beautiful species do I know out here, that is the *Abies Iezoniensis*. This magnificent tree I found flourishing in the far east of Yezo, and on the S. W. end of Kunishir Island. *Abies microsperma*, a picturesque [40] though much smaller tree (none that I have seen being over 40 or 50 feet in height) grows on the higher ranges, particularly on the summit of Ō dai san. There also I found *Abies Veitchii*, a beautiful species of silver fir. The cone of this species is very small, dark purple, tinged with brown, growing erect near the axillæ of the branchlets. The scales are very horizontal, and the cone usually splotched over with resin. *Pinus Silvestris* (Scotch fir) is not plentiful, though found on these mountains.

I have now named most of the *coniferæ* growing in this locality. There are a few other species, less common and only found in a few places, and then generally as single plants. But those I have mentioned constitute the cone forests, and of all these none grow to the height and large dimensions of the *Pinus Firma*. Many a magnificent old patriarch I came across, frequently a dozen or more, in the space of an acre or so, all colossal trees, and in rare perfection as timber; but as to their being made timber of, they are perfectly safe, as it would be impossible to transport them as such to the habitation of man. I am only 3100 feet up and have but named the pines. To enumerate the deciduous shrubs which I have passed through would be an endless task. I observed great numbers of myrtles, camellias, the wild paper mulberry and innumerable other species.

From the summit of the first range, where we now were, and looking back, the whole sea-coast lay at our feet, the indentations and harbours looking like threads of silver, running and twisting amongst

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the ridge of a range at right angles to the one we had ascended, and for 8½ miles we went very evenly, then dipped down 1000 feet, crossing a mountain torrent, and immediately ascended to 4000 feet. Here was a great change in the *flora*, nothing but oak, beech, chestnut and maple, no pines, the under cover bamboo grass, identical, I believe, with that in Yeso. Along this 4000 feet ridge we went for several miles, when suddenly the path reached [41] the crest, and then descended with terrible steepness, along only one shoulder of the mountain, to 1,500 feet. What a wonderful spot we here reached! A few very poor inhabitants had clustered together forming a village of about ten houses, called Kingumi, situated on the steep slope of the hill side, in an almost perfect crater, so steep and straight did the mountains rise all round.

There was but one opening, where a clear stream of water rushed over great boulders, joining a large river close by, which flowed away to the southward for 70 miles before reaching Shingo. The small patches of potatoes and other vegetables round the cottages were all barricaded in with stout wood (quarter trees) to keep the deer and wild boar out. I was charmed to find here a domesticated bee, even then busily working, notwithstanding the lateness of the day and season. One cottage had six hives, rough square boxes, sheltered with some bark from the rain. The bee is similar to our own, but rather smaller, and as for the honey, it is excellent. I must just add before closing the first day that we had again left the oak and chestnut and returned to the region of the *hinoki* and *sugi*. From here and along the course of the river these two cedars are grown, and when cut, floated to Shingo.

Here I must remark that immediately after topping the first range of mountains from the sea, all the streams and rivers took a southerly direction, and though close to the sea coast—about six miles as the crow flies—none found their way there.

Occasionally during the day I came upon men and women carrying immense loads of staves for tubs, all ready cut, and soon found that they went many, many miles into these wild forests, until finding a suitable tree they felled it, and there and then cut it up into tub staves: to do this they had to return to and fro frequently, a tiresome and laborious task. We had come from first starting at Owashi Bay not less

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than 18 miles, all the way, except the first 5 miles, up and down mountains, the highest being 4000 feet. At Kingumi we put up for the night.

Next morning we started at eight, almost immediately [42] into the river's bed, and for 3½ miles followed its stony, rocky, upward course, crossing it in that distance more than twenty times. Frequently the cliffs obliged us to crawl round them through the thick tangled cover, again taking to the slippery stony bed of the river, to leave it shortly for another scramble. Fortunately it was all rather up hill, which lessened the chance of falling. I know nothing more trying and disagreeable to walk over than smooth water-worn slabs of rock and big boulders. It would be impossible to give an idea of the extraordinary steepness of the mountain sides as they rose from the river course, many of them crowned by magnificent castellated rocks, 2,000 feet above us. Marvellously grand they looked, covered with the lovely autumn tints of the oak, maple, etc. After three and a half miles along the river, we breasted the hill, and after a continuous climb of more then three hours, reached the crest. Striking off along an irregular plateau, we arrived at our destination at half past three, being still four miles from the summit of Ō dai san.

The mass of mountains we had now reached, 4200 feet above the level, spread out for a great distance, in an irregular plateau, here and there varied by rises 500 or 600 feet high, and traversed everywhere by numerous streams.

The highest peak on this singular table land was the spot I wished to reach, and is called Ō dai san.

The whole of this immense extent of mountain is covered with primeval forest; generally there is no underwood, but a soft carpet of the greenest moss covers the ground. The trees are likewise coated with moss and lichen. As I gazed upon the great stems of these self-planted and never disturbed trees, all I may say of good size, and most of them of grand proportions, I could not help internally ejaculating, "What a waste of timber!"

Five years since, the Japanese Government decided to form a settlement on this space of table-land, although there exists no way or means of getting there except by climbing the steepest and most precipi-

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tous mountains imaginable. They cleared away—or rather merely cut [43] down—about 12 acres of wood, on a spot or glade through which three streams traverse, meet, and flow away in one. Here they built a house for an official to superintend the settlement, etc., set up a water-mill,—what for, I could not make out,—dug up a few square yards, certainly not more than twenty, and planted potatoes. Then, as might have been foreseen, they pronounced the enterprise impracticable, shut up the house, and left. The house, though partially in ruins, afforded us good shelter. It was built on the bank of one of the streams, which happened to be full of excellent trout. Here in half an hour, and with an impromptu wooden spear, we caught daily as many as we pleased.

The magnificent great oak trees which had been cut down were lying about just as they had been left, many of them three feet in diameter, and fifty feet of clean stem. It appears unfortunate that none of the good timber abounding on these mountains is ever likely to be turned to use. I see no means of getting it down from these heights. It is an undertaking of very considerable labour for a man to get up or down when unencumbered, and the transport of large logs of timber to the river would be, I consider, impossible. The beech which flourishes on the nearer ranges, and which is of large growth, might possibly be utilized. There are no people more persevering than the Japanese in the way they farm the hill-sides with timber. None appear too steep or rough, and wherever the *sugi* and *hinoki* will grow, there it is sure to be found cultivated. This, of course, is on the mountains nearer to the sea, and close to the villages.

Having reached towards evening the dilapidated house I have mentioned, and caught enough trout for supper, I was not sorry to turn in and rest. Next morning, very soon after daylight, I started with only the guide, for the top, in hopes by going quietly to come across a bear, wolf, or *nigoo*. Crossing a stream, we came upon the fresh track of a bear, whose wet foot-marks were still on the stones, where he had left the water. But he was not to be found, though I followed him some distance. In two [44] hours the summit was reached, rather more than 1000 feet above the rest-house, the total height being 5400 feet. Here on climbing to the top of a tree, which most conveniently had its top twisted off, I found the Japanese had not exaggerated the view to be

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obtained. Although I shall never forget it, I feel it is useless to attempt to describe it. Suffice it to say, all the coast, and the interior as far as the eye could reach, lay before me. No higher range sprang up to intercept the view. Far away in the distance Fuji yama rose out of a curtain of mist, and another great mountain further to the north and west, the name of which I do not know, was also to be seen. The former was 150 miles distant; the latter not so far. It is surprizing how great an extent of country Ō dai san, notwithstanding its moderate height, commands. I had only half succeeded with the theodolite, when down came a shower of rain, from the N. W., which quickly settled into a wet afternoon. The next day was spent mostly in the clouds: it cleared away towards the afternoon, but not in time to reach the top and return before dark. The day after this I was again at the summit soon after daylight, but it thickened over before I finished, so I spent an hour or two roaming through the beautiful primeval forest. The perfect silence that reigned was only disturbed by the big black and white woodpecker, as he tapped the trees with his hard sharp bill in quest of insects. The wolves were not howling as they did when I first reached the tops two days before.

Next day it blew a good gale—and what a grand sight it was! These glorious forests, which yesterday were so still and silent, now roared and howled, as the gusts of wind rushed through them; branches were broken off and hurled away, trees felled, and cracked off like twigs, and the air was thick with flying leaves. It was a wild and grand sight: the streams soon became good-sized rivers, for it rained in torrents the whole time.

The storm lasted throughout the following day, but towards evening the wind hauled to the north, and I felt sure fine weather would follow.

[45] The next morning the sun was scarcely up when I started for the summit. Bitterly cold it was; the ground was frozen and crisp and the frost still silvered the trees and grass. The soft curtains of mist which were floating lazily about the dips and sides of the rising grounds soon dispersed as the sun rose higher in the heavens, and an hour spent on the summit finished my work. I saw a *nigoo* when going up, but though I got a snap shot, he went away untouched.

Before quitting this elevated spot, on my downward journey, I must

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add a few lines relative to the different natural objects which I found there To begin with the largest animal, bears; they are certainly numerous, almost every oak tree appeared to be scratched and clawed by these animals. The moss covering their rough bark was torn off and hung down in strips. They evidently climb these trees to feed on the acorns. It is a small black species of bear, not half the size of that inhabiting Yezo. Wolves are abundant; they howled even during the day time close to us. The *nigoo* is a true species of chamois, and a handsome animal. I saw one of them: as I have said, they are numerous and afford food for the wolves. Deer are scarce; they prefer the lower ranges. Wild boar abound, and hares likewise.

All the streams at the top besides those lower down literally swarmed with trout, which were busily engaged spawning, while that little robber the water-ouzel. was as busily employed destroying the spawn, singing and diving and thoroughly enjoying the good food before him. This bird I may remark is identical with our own species, with the peculiar and interesting difference of not having the white horse-shoe patch on the breast, which the British species has. A single snipe of that large species *Gallinago Australis*, remained several days about the water near the house, and then disappeared. The common wren, often in its funny, inquisitive manner, would appear from some thick bush, utter its very long song, and after watching me for a few moments bob itself out of sight. I saw also a large spotted wood-pecker, a bird I have only previously [46] found in the extreme north of Nipon, the common jay, copper pheasants, and the robin red-breast. I was very pleased to find this latter bird, and to notice how exactly he resembled our own species in their bold impudent nature, as well as plumage; they appear only to differ in not having quite so much red on the breast as those at home. I may also mention the bullfinch, whose note and habit are exactly similar to the English birds.

What delighted me greatly was the beautiful open woodland clear of brush-wood and undercover, the soft green carpet of moss under foot and the perfect stillness and quiet. Oak, maple, beech, and chestnut, constituted the principal deciduous trees. Of these the oak, and beech were invariably fine timber; the chestnut frequently, if not generally, sprang from the ground in two or three stems. The pines I have already

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mentioned, with the exception of a species of spruce, which I do not know, but which flourishes on the higher slopes. Yew of fair dimensions grew on the summit; *hinoki* only moderately. I do not think the Japanese care much for the *momi* pine; at any rate I have never seen it cultivated. That wonderfully hard close-grained wood of a yellowish tint, much resembling box, and from which combs are manufactured, is found on Odai Yama; its native name is *tsuge*. Another very peculiar deciduous tree, I saw, but only here and there, called *sawara;* it has a red skin-like bark, and is very hard and close grained. I might go on almost endlessly in speaking of the numerous species of deciduous trees, which here, unmolested by man, spring up, flourish and die, but I fear I have already dwelt too long on a single subject. Once more I may add I see no means by which these great forests of excellent timber can be got from their high and difficult situations, to the habitations of man.

The rocky courses cut through the mountains by the innumerable streams and rivers, shew generally limestone, and rough coarse granite, with a sprinkling of sandstone; higher up the rocks and stones are smaller, and granite predominates.

I started about noon for the downward journey, but [47] instead of returning the same way, struck away to the N. W. for four miles, along the ridge of a long spur of Odai Yama; here we dipped down a few hundred feet, and fell upon the main road, or rather path, between Ōsaka and Shingo. Turning to the S. E. for eight and a quarter miles along the path, we then suddenly descended from a height of 3,000 feet to 480, where in a village situated on a beautiful stream, swarming with trout, we found comfortable lodgings for the night. This afternoon we passed a cluster of huts on the hillside some way to our right and far up a deep valley. The old guide, when I enquired the name of the village, said there was a gold mine there, worked by one hundred people, under the superintendence of a Government official. Unfortunately it was not feasible to reach the place that day or I should certainly have visited it. It rejoiced in the name of Nishi no mura.

After resting for the night at Totchi moto, where there may have been about 50 houses, I started next morning at eight, mounted immediately to 2,700 feet and then descended to a most rugged pass cut through the mountains, by a torrent of the clearest water, which after

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rushing down its headlong course over boulders and masses of limestone rock, joined one of the main rivers at a level of 400 feet above the sea, where five houses constituted the village of Naga-uchi. We reached this place about noon, wet to the skin. It had rained in torrents since eight in the morning. From here we ascended again to a height of 3,000 feet. The coolies were nowhere, so I struck off along the sharp ridge, knowing by compass that the direction was right, but being enveloped in mist and rain. I was not sorry when in a couple of hours time I came across the same path I had passed along eight days before.

Being now certain as to my whereabouts, I made the best of my way to Owashi, reaching the ship at six, having since starting at eight, done about twenty miles in distance, and ascended in the aggregate about 8,000 feet.

And here finished a cruise I shall always remember with pleasure and interest. I only wanted a little more [48] time for exploring, as my hands were tied by having to watch my opportunity for making the necesary observations at the summit. Before starting on the journey I had estimated the height of Odai Yama at 5,000 feet, to enable me to calculate the temperature, which proved however lower than I had anticipated. During the nights it was very cold; the lowest I registered the thermometer was 28°, and it froze pretty hard on two occasions.

I have only to add, that this wild region which stretches almost entirely across the peninsula, and far away to the north, is full of interest to the naturalist, while to the lover of scenery it presents views of the wildest and grandest description. The Japanese know very little about it; the charcoal burners are the only beings who penetrate far into the interior, and they never approach the inner masses of mountain, of which Odai Yama is but a single chain.

A General Meeting of the Society was held on Wednesday evening, 17th February, at the Grand Hotel, Dr. Hepburn in the chair.

The minutes of the last meeting were approved and it was announced that Mr. Montague Kirkwood had been elected an ordinary member since last general meeting.

Sir Harry Parkes then read "A description of the coast between Ohosima and

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Toba Harbours, and an account of an excursion among the forest and mountain ranges of the province of Yamoto," by Captain H. C. St. John, Commanding "H. M. S. *Sylvia*.

After the paper had been read a vote of thanks to Captain St. John for his interesting contribution was moved by the Rev. Mr. Syle, seconded by Mr. Drummond Hay, and carried unanimously.

Mr. Syle then remarked on the especially interesting and valuable character of the paper just read; and questioned whether there might not be constructed on the hill-sides of Yamato such lumber-shoots or "slides" as were found in the forests of Germany and Oregon: also, it seemed very desirable, if indeed the true *chamois* is to be found in Yamato, that its skin should be utilized as leather, and its flesh for food.

[49] Mr. Brunton said:—This country is no doubt, at present, badly off for timber, and it would be a great matter if the Government could do something towards utilizing the extensive forests described by Capt. St. John. The only really available hard wood at present in use is *keyaki*, and Capt. St. John mentions oak trees as existing in this district, of immense size. We know of oak being found in Yezo, but I have not heard before of its existence on the main island. If it is the true oak, this is an additional and a very powerful reason for some steps being taken to bring these woods into use. So long as the way to the sea is down-hill I hardly think there can be any insurmountable difficulty in getting the timber to the habitations of men.

Professor Ayrton said mention had been made in the paper of the evening of the charcoal burners penetrating far into the forests to obtain the wood. Possibly this would furnish an explanation of the comparative high price of charcoal, which could scarcely be found either in the cost of the burning or in the value of the wood, and therefore must be sought for in the difficulty of transport. In the case of the hard kinds of charcoal, which were much dearer than the soft charcoal, the cause might really be the great difference of value of the woods. Although all the Japanese burnt charcoal, the actual consumption really was not as large as it might at first sight appear to be, since, the *hibachi* being closed at the bottom, the absence of draught made the burning go on very slowly.

Mr. Brunton suggested that as Capt. St. John's paper was confined to a description of the coast between Ohosima and Owashi Bay, a request might be sent to him, along with the note of thanks already agreed to by the Meeting, to furnish another paper describing that part of the coast between Owashi and Soba. From his own knowledge he was aware that the harbour of Mura Goza and Matoya were among the most wonderful natural basins in this part of the world, and as Capt. St. John had most excellent facilities for acquiring information, he was in a position to supply papers of the greatest interest and value.

Sir Harry Parkes undertook to convey the request to Captain St. John, and the meeting then terminated.

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ON SOME JAPANESE LEGENDS.

By C. W. Goodwin, Esq.

[*Read before the Asiatic Society of Japan, on the 17th March, 1875.*]

[50] It is more than sixty years ago since the publication by the brothers Grimm of a collection of popular and nursery tales which they had gathered from the lips of the German peasantry, laid the foundation of a new study which has ever since been pursued with interest and ardour. The legends of nearly every country and province in the world have been assiduously sought for and recorded, and a comparison of them has led to many curious results. Some of these old wives tales, now only related for the amusement of children, are found to be disguised forms of old mythologies, others are the remains of poems or romances, or perhaps even of veritable historical narratives. Stories which can be traced to Central Asia are found localized in remote corners of Europe, as though they had grown there spontaneously. Such a one is the story of the faithful hound Gelert, whose tomb is shown in Wales to the present day, at the village named Bedd-Gelert, although precisely the same legend is found in the ancient collection of Persian tales known under the name of Syntipas, of which we possess a Greek translation. The question how and when these tales were spread over the world is one of much interest. Some of them may have been carried by the Aryan tribes [51] at their first emigration from their Asian homes. Others may have been imported by wandering minstrels at later periods. The process of communication must have gone on from a very remote antiquity. Quite recently Egyptian romances have been discovered in manuscripts of the 18th or 14th centuries before Christ, which have all the childish *naïveté* and the stock incidents of the modern fairy tale. The intercourse which early existed between Egypt, the Western part of

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the Asian Continent and Europe explains sufficiently the diffusion of this ancient literature over that portion of the earth's surface which we are accustomed to call the West. But we should be less prepared *à priori* to find European legends making their appearance in a country like Japan so isolated and remote, and which, so far as it has borrowed, has done so chiefly from China, itself a country of which the literature is indigenous, and whose legends have not much affinity with those of Western Asia.

Some instances, however, of Japanese legends bearing affinity to those of the far West do occur, and one at least so remarkable that it has appeared to me worth making the subject of enquiry. The object of the present paper is simply to open the matter and to invite to it the attention of Japanese scholars, who are more qualified than myself to institute a comparison between the whole cycle of Japanese legends and those current in different countries of the West.

A short story included among those given in Mitford's "Tales of Old Japan," struck me when I first read it, as having a remarkable resemblance to one with which I had been familiar from my childhood—an Irish story first published by Crofton Croker about the year 1824 or 1825—and called the Legend of Knockgrafton. As I have unfortunately no copy of Crofton Croker's work by me, I must tell this tale as well as I can from memory.

"The Legend of Knockgrafton.

"In some remote district in Ireland, but whereabouts I forget, is a village called Knockgrafton, near which are the [52] ruins of an ancient castle surrounded by a moat, known in ancient times as the haunt of fairies or elves.

"In the village of Knockgrafton lived a good-natured little hump-backed man named Lusmore. He was a general favorite from his cheerful and pleasant humour, and nature had endowed him with a good pair of lungs and a taste for music.

"One sunny day Lusmore lay down on the bank of the moat and had a nap, from which he was awakened by the sweet sound of voices apparently proceeding from beneath the water. He knew at once that it must be the fairies singing. Their song was of a very simple

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character, for it was nothing, when translated into English (the fairies of Knockgrafton of course sang in the Irish or Erse language) but—Monday, Tuesday, Monday, Tuesday, and so on *ad infinitum*. Lusmore listened for some time, and at length got rather tired of this perpetual repetition, and seizing a moment when there was a slight pause he sung at the top of his voice, but in a musical tone—'and Wednesday too.' Scarcely had he done this, when he found himself caught up and whirled down to the bottom of the moat, where was a spacious hall full of elves dancing and singing. They took up Lusmore's words and went on singing lustily 'Monday, Tuesday and Wednesday too.' After this had continued for some time Lusmore was conducted to a place of honour, and two of the strongest elves came and with a saw made of butter they cut off his hump,—and then they all sang—

Lusmore, Lusmore,
Weep not nor deplore
The hump that you bore
On your back is no more;
Look down on the floor
And view it Lusmore.

Little Lusmore now found to his astonishment that he was no longer bent double as he used to be, but that he could lift himself upright and was a tall man, and in doing this he nearly knocked his head against the ceiling. After much rejoicing and feasting it became time for the elves [53] to give up their festivities. Lusmore fell asleep and when he awoke he found himself again on the bank outside the moat. He got up, rubbed his eyes, and felt his back, and found that sure enough he was rid of his hump. He went back rejoicing and told all the neighbours how he had danced and sung with the elves, and how they had taken off his hump. The story soon got wind and all the neighbourhood came to see Lusmore and congratulate him upon his good fortune. Now there was another humpback at Knockgrafton known by the name of Jack Madden, an ill-conditioned young scamp whom nobody liked. His mother was an envious old crone who did nothing but murmur at Lusmore's luck and wondered why the same did not happen to her son Jack. By her advice Jack Madden went and laid himself one day down by the moat, and there sure enough he heard the fairies singing their

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song with Lusmore's elegant addition—'Monday, Tuesday and Wednesday too.' Now Jack Madden, who was as deficient in taste as he was in voice, thought to himself if Lusmore pleased the fairies by adding another day to their song, why should not I do better still by adding all the rest of the week,—so without waiting for a pause, or paying any regard to time or measure, he began in a harsh loud voice shouting out Thursday, Friday, Saturday, Sunday. Now the fairies have not only an exquisite ear for rhythm and time, but they have also a peculiar aversion to hear the Lord's day named. No sooner therefore had Jack Madden commenced this tasteless uproar than he found himself whirled into the moat and surrounded by fierce-looking fairies. Two of the strongest of these, by orders from the chief, took up Lusmore's hump, which was still lying about, and clapped it on Jack Madden's back, where it instantly stuck as tight as wax. Then they all sang—

Jack Madden, Jack Madden!
Your words came so bad in
The tune we feel glad in—
This castle you're had in
That your life we may sadden;
Here's two humps for Jack Madden.

[54] "Immediately after this they kicked him out of the moat, and he was found on the ground next morning by the old crone his mother, when she came to look after him, with two humps instead of one. Such was the reward of envy and bad taste."

This is the Irish story picked up from the mouths of the peasantry more than fifty years ago. I am not able to say whether it has been found in any form in any other part of Europe, but my impression is that it is not known out of Ireland. The Japanese tale which resembles it is told very briefly by Mr. Mitford, and as he does not give any reference to the source from whence he obtained it, I made enquiries upon the subject, and my friend Mr. J. C. Hall, of H. M. Consular Service, kindly ascertained for me where it was to be found. It is given in the second volume of the Japanese work entitled "Uji Shu-i monogatari"—*i.e.* Stories omitted from the Uji collection. This book was first printed in 1664, but is supposed to have been written in the 18th century, the author being unknown.

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Mr. Hall kindly transliterated the Japanese text and has also supplied me with the following translation.

"THE STORY OF THE MAN WITH THE WEN.

"The following also happened now a long time ago. There was an old man who had a big wen on the right side of his face. He went to (cut wood on) mount Taiko. It came on to rain and blow without stopping, so that he could not get back, and much against his will stopped the night on the hills. There was not even a wood-cutter's (cabin) near. He was in a dreadful plight and did not know what to do. So he crept into the hollow of a tree that was there, and whilst he was crouching inside, unable to close his eyes, there came from the distance a sound as of men hurrying along and talking loudly the while. Sure enough, as he was all alone there in the midst of the hills, he felt his spirits somewhat revive within him at the indication of people approaching, and he looked out and beheld beings of all sorts of shapes and appearances, [55] some of them of a red colour wearing blue clothes and others of a black colour wearing red clothes. Running well in front of the rest were some with only one eye and some without a mouth, and such like, and altogether, indeed, a quite indescribable kind of beings. The whole throng, to the number of about a hundred, came together with a whizzing sort of sound, and after lighting a great fire as bright as the eye of heaven, they spread themselves about it in front of the hollow tree in which the old man was, who thereupon lost the power of his senses more and more. One elf who seemed to be their chief sat on a seat set thwart-wise, while the elves ranged themselves on each side of him in two rows. I don't know how many there were of them, and time would fail me if I were to attempt to describe the appearance of them one by one. They enjoyed themselves drinking *sake* just like people of this world, and after passing the bowl round repeatedly the chief elf seemed to get uncommonly drunk. Then one young elf rose at the further end, and clapping a dish-tray on his head begged for something or other. Uttering witty sayings he marched up slowly to the front of the elf on the thwart seat and seemed to be importuning him: the latter remained seated holding the drinking cup in his left hand and smiling good humouredly, just like a person of this world. Then he led

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off into a dance and the rest joined in order all down the line: some danced well, others badly. When at length they seemed to have had enough of it the elf of the thwart seat spoke and said: 'We have prolonged the fun to-night much beyond our usual time; no wonder, however; the jig was a sight to see.' Hereupon the old man, whether it was that something had bewitched him, or that some god or saint put it into his mind to do so—at any rate he felt a desire to start out and dance. Then all at once he changed his mind, but the elves hereupon without more ado struck up a tune of so pleasing a sound that he made up his mind. 'So be it,' said he, 'I will run out and have my dance; I must, even if I die for it,' and with his cap cocked over his nose and [56] his woodman's hatchet stuck in his girdle, forth he came dancing up in front of where the elf on the thwart seat was. Up sprang the elves, bounding and buzzing about him, to know what this meant. The old man, now stretching himself out, now drawing himself together, with quips and cranks and every gesture he was master of, went circling round the entire area, singing in a drunken voice the while. All the elves there assembled, and he on the thwart-seat amongst the foremost, looked on applauding and amused. Then the elf of the thwart-seat said: 'For many years we have indulged in this amusement, but never yet have we come across anything like this. Henceforth this old man must positively come and join in the amusement with us.' The old man replied: 'No need to order me; come I will. This being an impromptu effort I forgot to keep time to the music, but if you are so good as to be pleased with it I will endeavour to perform more cleverly next time.' The elf of the thwart seat affably rejoined, 'You must really come, you know.' Then an elf who was sitting three seats back said: 'Although this old man speaks in this way, it is possible he may not come at all; we had better take some likely pledge or other from him.' 'Just so, just so,' said the elf on the thwart seat; 'what ought we to take?' Then some suggested one thing, some another, but the elf on the thwart seat said: 'We should take the wen which the old man has on his face: a wen is a lucky thing and he will hardly be willing to part with it.' Then the old man said: 'You may take my nose or my eye if you like, but please do allow me to keep this wen: it would be unfair of you to take away from me without cause a thing that I have had for so

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many years.' 'Oh! you are so unwilling to part with it as all that, then?' said the elf of the thwart seat; 'that's just the thing to take.' Whereupon up come an elf, and 'off it goes,' says he, and twisted it off, causing hardly any pain. 'So you must come and play next time, now,' said they, and as it was now dawn and the birds were beginning to sing, the elves went [57] away. The old man felt his face and, lo! the wen he had for years was clean gone, not even a trace of it being perceptible on the smooth even surface. He went back to his home forgetting even to cut the wood he had come for. When the old woman his wife asked him what wonderful thing had happened him, he told her it was so and so. 'What a vexatious affair,' said she.

"Next door lived a certain old man who had a big wen on the left side of his face. This old man observing that the other had lost his wen, thought it very queer and asked him about it, saying:—'How did you come to get rid of your wen? What doctor took it off for you? Kindly tell me, for I want to have this wen of mine taken off.' 'It wasn't taken off by a doctor at all,' said the other; 'it happened on this wise,' and he told him how it had been taken away by the elves. 'I'll have mine taken off in the same way,' thought he, and he questioned the first old man closely, who told him the whole circumstances. Following out what he had heard, he went and waited inside the hollow tree, and true enough, just as he had been told, the elves came, and spreading themselves all about began to amuse themselves drinking *sake*. Then they said, 'Has the old man come who was here?' The other old man swung himself out, though very much afraid he was. Then the elves said, 'Yes, the old man has come; here he is.' 'Come here, dance, quick,' said the elf on the thwart seat. Now this old man was not fit to be compared to the former one, and after making an awkward attempt at a dance the elf on the thwart seat said to him, 'You dance very badly this time; ever so many times worse than you danced before. Let him have back the wen we took from him as pledge.' Hereupon an elf from the far end came forward, saying, 'Here, you may have your pledge, the wen, back again,' and with that he threw it at him and it stuck on his other cheek, so that he now had a wen on both sides of his face.

"Moral: People ought not to feel envious."

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[58] These stories are unmistakeably identical. Can it be supposed that the same leading idea, that of the taking off the hump or wen of one man, by the agency of elves, and clapping it on another in reward for his envy and want of skill came into the heads of two different story-tellers, one a Celt and the other a Japanese, independently? Is it credible that one of these stories is not borrowed from the other? But, if so, then at what age of the world did the loan take place, and which country was the borrower and which the lender?

As we know of no recent epoch at which the communication from one country to the other is likely to have taken place, we are led to think that this story may be one of the most ancient traditions of the human race, and that it may date from a time far anterior to history, when a Turanian tribe may have occupied Iceland, preceding the Celtic tribes who are now the oldest stratum of humanity remaining in the far west.

In the remarkable Dutch novel, entitled "Max Havelaar," of which an English translation by Baron Alphonse Nahuijs appeared in 1868, a Japanese legend is introduced, professedly taken from a periodical paper called "Dutch India," and attributed to a writer named Jerome. This story, entitled "The Japanese Stone-cutter," is told nearly as follows:—

"There was a man who cut stones out of a rock. His labour was heavy and he laboured much, but his wages were small, and he was not content. He sighed because his labour was heavy, and he cried, 'O that I were rich, in order to rest on a couch, with curtains.'

"And there came an angel out of heaven, who said, 'Be it as you have said.' And he was rich. And he rested on a couch, and the curtain was of red silk. And the king of the country passed with horsemen before his carriage, and likewise behind the carriage there were horsemen, and the golden umbrella was held over the head of the king.

"And as soon as the rich man heard this he was sad, because they held no golden umbrella over *his* head, and [59] he was not content. He sighed and cried, 'I should like to be a king.'

"And there came an angel out of heaven and said 'Be it as you have said.'

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"And he became a king. And before his carriage were many horsemen, and behind were also horsemen, and over his head they held the golden umbrella.

"And the sun shone with hot beams, and burned the earth in such a manner that the grass was dried up.

"And the king complained that the sun burned his face, and had more power than he; and he was not satisfied. He sighed and cried, 'I should like to be the sun.'

"And there came an angel out of heaven who said, 'Be it as you have said.' And he became the sun. And he sent up his beams on high, and down to the earth; to the right and to the left—everywhere.

"And he burned up the grass on the earth and the faces of the princes who were on the earth.

"And a cloud came between him and the earth and the beams of the sun were turned back.

"And he was angry that his power was resisted; and he complained that this cloud had more power than he; and he was dissatisfied.

"He desired to be the cloud that was so mighty.

"And there came an angel from heaven who said, 'Be this as you have said.'

"And he became a cloud, and placed himself between the sun and the earth, and intercepted the beams, so that the grass became green. And the cloud rained in large drops on the earth and made the rivers swell, and the floods carried away the herds.

"And the cloud devastated the field with much water.

"And it fell on a rock which did not move, and rattled in large streams, but the rock did not yield.

"And the cloud was angry because the rock would not yield, and because the strength of its streams was vain, and it was not contented.

"It cried, 'This rock has more power than I have. I wish to be this rock.'

[60] "And there came an angel out of heaven who said, 'Be this as you have said,' and it became a rock, and moved neither when the sun shone nor when it rained, and there came a man with pick-axe and sharp chisel and heavy hammer, who cut stones out of the rock.

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"And the rock said, 'What is this, that the man has power over me and cuts stones out of my bosom? And it was discontented. It cried, 'I am weaker than he, I should like to be that man.'

"And there came an angel out of heaven who said, 'Be this as you have said,' and he became a stone-cutter. And he cut stones out of the rock with heavy labour, and he laboured hard for small wages, and *was* contented."

When I first came across this story, it reminded me of one which is to be found in Grimm's Popular tales, that entitled "The Fisherman and his wife," the moral of which is, "Be content with your station."

The book which contains "the Japanese stone-cutter" being a Dutch one, and the tale evidently containing many touches of colouring which are not Japanese, it was necessary before drawing any inference from its resemblance to the well-known German tale, to make some enquiry as to its authenticity and its real origin.

The result of the enquiry has been that no such tale is to be found at present in any Japanese book, but that one in the main similar is current in the mouths of the people, and that in a great variety of forms. One version has been obtained for me by Mr. J. C. Hall from a Japanese teacher, who wrote it down from recollection. Mr. Hall has kindly transcribed the Japanese text into English characters, and has furnished me with a translation, which is as follows:

"The Story of the Ambitious Mice.

"In a certain place there lived a pair of mice, and a daughter was born unto them. The parent mice were uncommonly fond of her, and wished to marry their daughter to whatever was most powerful in the whole world, so they set about choosing a son-in-law. A neighbour mouse [61] said, 'The most powerful thing in the world, is, beyond comparison, the sun. If you marry your daughter to the sun there will be nobody in all the world to equal you.' When the parent mice heard this they were greatly delighted and went straightway to the sun and told him of their desire that he should take their daughter to wife. The sun replied—'I am extremely obliged to you for coming such a long journey and for your kind intention of allowing me to wed your

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dearly beloved daughter. But what, pray, was your idea in choosing me for a son-in law?' The mice said, 'We wish to marry our daughter to whatever is most powerful in the world, and as you are, beyond rivalry, the most powerful personage in the world, that is why we desire to give you our daughter in marriage.' The Sun rejoined:—'You are certainly not without reason in considering me the most powerful thing in the world; but there is one still more powerful than I am, for whose strength I am in no way a match. It is to that you ought to marry your daughter.' 'Can there be aught more powerful than you?' said the mice. The Sun rejoined:—'Ofttimes when I want to illumine the world a floating cloud comes out and covers me so that I am rendered powerless. My power is no match for that of the cloud. If it is a powerful thing you want there is nought like the cloud.' The mice answered, 'What you say is certainly the truth.' After that they went to the cloud, and expressed to it their wish to have it for their son-in-law. The cloud said, 'True, I have the strength to cover over the Sun, but as soon as the wind begins to blow I am at once scattered to pieces and can do nothing. I am no match for the power of the wind.' Then the mice went their way and coming to the wind, made their proposal of marriage. The wind said: 'True, I have the strength to blow the cloud to pieces, but when a wall is put up to keep me off, I cannot blow through that wall. I am no match for the power of the wall.' Then the mice went their way and coming to the wall told their story as before. The wall said: 'True, I have the strength [62] to keep off the wind, but there is the mouse who sometimes gnaws my body, opens a hole through me and hurts me. I cannot withstand the power of the mouse. Far better for you to make the mouse your son-in-law than me.' The mice were convinced by this reasoning and returned home, and after all, it is said, they married their daughter to one of their own kind."

Although the stories of the stone-cutter and the ambitious mice have evidently a common basis, there are, it will be seen, many important points of dissimilarity, and it is possible that these may be principally due to the Dutch author who may have had the German tale in his mind. This is a point which I am unable now to determine. I should be much obliged to any Japanese scholar who would supply other genuine Japanese varieties of the tale.

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The German story in Grimm to which I have alluded is substantially as follows: —

"THE FISHERMAN AND HIS WIFE.

"A fisherman once lived contentedly with his wife in a little hut near a lake, and he went every day to throw his line into the water.

"One day after angling for a long time without even a bite, the line suddenly sunk to the bottom, and when he pulled it up again there was a large flounder hanging to the end of it.

"'Oh! dear,' exclaimed the fish, 'good fishermen let me go, I pray you; I am not a real fish, but a prince in disguise. I shall be of no use to you, for I am not good to eat; put me back into the water, and let me swim away.'

"'Ah,' said the man, 'you need not make such a disturbance. I would rather let a flounder who can speak swim away, than keep it.'

"With these words he placed the fish back again in the water and it sunk to the bottom, leaving a long streak of blood behind it. Then the fisherman rose up and went home to his wife in the hut.

"'Husband,' said the wife, 'have you caught anything to-day?'

[68] "I caught a flounder,' he replied, 'who said he was an enchanted prince, and I threw him back into the water, and let him swim away.'

"'Did you not wish?' she asked.

"'No,' he said; 'what should I wish for?'

"'Why, at least for a better hut than this dirty place; how unlucky of it. He would have promised you whatever you asked for. However, go and call him now, perhaps he will answer you.'

"The husband did not like this task at all; he though it was nonsense. However, to please his wife he went and stood by the sea. When he saw how green and dark it looked he felt much discouraged, but made up a rhyme and said,—

"'Flounder, flounder, in the sea
Come I pray and talk to me,
For my wife, dame Isabel,
Sent me here a tale to tell.'

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"Then the fish came swimming up to the surface and said, 'What do you want with me?'

"'Ah,' said the man, 'I caught you and let you go again to-day, without wishing, and my wife says I ought to have wished, for she cannot live any longer in such a miserable hut as ours and she wants a better one.'

"'Go home, man,' said the fish; 'your wife has all she wants.' So the husband went home and there was his wife no longer in her dirty hovel, but sitting at the door of a neat little cottage, looking very happy. She took her husband by the hand and said, 'Come in and see how much better it is than the other old hut.'

"So he followed her in and found a beautiful parlour, and a bright stove in it, a soft bed in the bed-room, and a kitchen full of earthenware, and tin and copper vessels for cooking, looking so bright and clean, and all of the very best. Outside was a little farm-yard, with hens and chickens running about, and beyond, a garden containing plenty of fruit and vegetables. 'See,' said the wife, 'is it not delightful?' 'Ah yes!' replied her husband, 'as long as [64] it is new you will be quite contented; but after that we shall see.'

"'Yes, we shall see,' said the wife.

"A fortnight passed and the husband felt quite happy, till one day his wife startled him by saying, 'Husband, after all, this is only a cottage, very much too small for us, and the yard and the garden cover very little ground. If the fish is really a prince in disguise, he could very well give us a larger house. I should like above all things to live in a large castle built of stone. Go to the fish, and ask him to build us a castle.'

"'Ah. wife,' he said, 'this cottage is good enough for us; what do we want with a castle?'

"'Go along,' she replied, 'the flounder will be sure to give what you ask.'

"'Nay, wife;' said he, 'the fish gave us the cottage at first, but if I go again he may be angry.'

"'Never mind,' she replied; 'he can do what I wish easily, and I have no doubt he will; so go and try.'

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"The husband rose to go with a heavy heart. He said to himself, 'This is not right,' and when he reached the sea he noticed that the water was now a dark blue yet very calm, so he began his old song:

'Flounder, flounder in the sea
Come I pray and talk to me—
For my wife, dame Isabel,
Wishes what I fear to tell.'

"'Now then, what do you want?' said the fish, lifting his head above the water.

"'Oh dear,' said the fisherman, in a frightened tone, 'my wife wants to live in a great stone castle.'

"'Go home, man, and you will find her there,' was the reply.

"The husband hastened home, and where the cottage had been there stood a fresh stone castle, and his wife tripped down the steps saying, 'Come in to me, and I will show you what a beautiful dwelling we now have.'

"The fisherman's wife soon becomes discontented in the splendid castle, and her next wish is to be queen.

[65] "Her husband reluctantly complies with her desires and once more addressed himself to the fish, with their new request, which is granted and he returns to find his wife invested with all the splendours of royalty.

"She now desires to be empress and this wish is also granted.

"Not satisfied with being empress she next requires to be the Pope, and even this is conceded, and when the husband comes back he finds her in a large cathedral.

"'Well wife,' says the husband, 'and you are Pope?' 'Yes,' she said, 'I am.'

"He stood still for a time watching her, and at length he remarked, 'You cannot be higher than the Pope, so I suppose you are now content.'

"'I am not quite sure,' she said. But when evening came, and they retired to rest, she could not sleep for thinking of what next she should wish for.

"Her husband slept soundly, for he had tired himself the day before; but she rose even before the day broke, and stood at the window to

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watch the sun rise. It was a beautiful sight, and she exclaimed as she watched it, 'Oh, if I only had the power to make the sun rise! Husband, wake up,' she added, pushing him in the ribs with her elbows; 'wake up and go and tell the enchanted prince that I wish to be equal to the Creator, and make the sun rise.'

"The husband was so frightened at this that he tumbled out of bed, and exclaimed, 'Ah wife, what did'st thou say?'

"She repeated the words.

"Her husband fell on his knees before her, 'Don't ask me to do this: I cannot,' he cried; but she flew into a rage and drove him from the house.

"The poor fisherman went down to the shore in terror, for a dreadful storm had arisen, and he could scarcely stand on his feet. Ships were wrecked, boats tossed to and fro, and rocks rolled into the sea.

"In his terror and confusion he heard a voice from amidst the storm—'Your wife wishes to be equal to the Creator. [66] Go home, man, and find her again in her dirty hut by the sea.'

"He went home, to find the glories, the riches, and the palaces vanished, and his wife sitting in the old hut, an example of the consequences of impious ambition."

Notwithstanding the general resemblance between the German story of the fisherman and the Japanese one of the ambitious mice, the differences in treatment are so great that it may fairly be questioned whether they have a common origin. The story of the Japanese stone-cutter, as told in the Dutch novel, forms a kind of link between the two, but until we are sure that the peculiar features contained in it which bring it nearer to the German legend, have not been added by the author of the novel, we can form no satisfactory conclusion on the subject. The three legends, however, together furnish an instructive example of the manner in which one leading idea may be varied and decorated.

The last story I have to refer to is one which was printed in the *Japan Mail* of November 28th, 1874, and which I am informed is current amongst the old-wives of Japan at the present day.

"A Retort in Kind.

"Kisaburo, a man of a careful and saving disposition, abandoned his old lodgings and took a small dwelling next door to a famous eel-

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house. Now as every one knows that the titillating odour of eels fried in soy may be perceived far and near, Kisaburo found this change of quarters vastly to his advantage, and eat his simple meal of rice to the accompaniment of the delicious smell, dispensing with the usual adjuncts of fish or vegetables.

"The eel-man was not slow to discover this, and determining at length to ask his frugal-minded neighbour for payment, took him an account for the 'smell' of his eels. Kisaburo eyed him astutely, and drawing from his pocket-book the amount claimed from him, laid the money on the bill and began to converse with his visitor. The latter [67] at length rose to depart, when Kisaburo quietly replaced the money in his pocket-book. 'Hey!' quoth the eel-man, 'I thought that money was for me; why don't you give it to me?' 'Not so,' was the reply; 'you have charged me for the smell of your eels;—I pay you back with the sight of my money.'"

It was pointed out by a writer in the *Japan Daily Herald* of the 5th December, 1874, that the counterpart of this story is to be found greatly elaborated in Rabelais in the 87th chapter of the 3rd Book. The Rabelaisian version is as follows:—

"At Paris, in the roast-meat cookery of the Petit-Chastelet before the cook shop of one of the roast-meat-sellers of that lane, a certain hungry porter was eating his bread, after he had by parcels kept it a while above the reek and steam of a fat goose on the spit, turning at a great fire, and found it so besmoked with the vapour, to be savoury; which the cook observing, took notice, till after having ravined his penny loaf, whereof no morsel had been unsmokified, he was about decamping and going away. But, by your leave, as the fellow thought to have departed thence scot-free, the master-cook laid hold upon him by the gorget, and demanded payment for the smoke of his roast-meat. The porter answered, That he had sustained no loss at all,—that by that he had done there was no diminution made of the flesh,—that he had taken nothing of his, and that therefore he was not indebted to him in anything. As for the smoke in question, that, although he had not been there, it would howsoever have been evaporated: besides, that before that time it had never been seen nor heard, that roast-meat-smoke was sold upon the streets of Paris. The cook hereto replied, That he was

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not obliged nor any way bound to feed and nourish for nought a porter whom he had never seen before, with the smoke of his roast-meat, and thereupon swore, that if he would not forthwith content and satisfy him with present payment for the repast which he had thereby got, that he would take his crooked staves from off his back; which instead of having loads thereafter laid upon [68] them, should serve for fuel to his kitchen fires. Whilst he was going about so to do, and to have pulled them to him by one of the bottom rungs, which he had caught in his hand, the sturdy porter got out of his grip, drew forth the knotty cudgel, and stood to his own defence. The altercation waxed hot in words, which moved the gaping hoidens of the sottish Parisians to run from all parts thereabouts, to see what the issue would be of that babbling strife and contention. In the interim of this dispute, to very good purpose, Seyny John, the fool and citizen of Paris, happened to be there, whom the cook perceiving, said to the porter, 'Wilt thou refer and submit unto the noble Seyny John, the decision of the difference and controversy which is betwixt us'? 'Yes, by the blood of a goose,' answered the porter, 'I am content.' Seyny John the fool, finding that the cook and porter had compromised the determination of their variance and debate to the discretion of his award and arbitrament, after that the reason on either side, whereupon was grounded the mutual fierceness of their brawling jar, had been to the full displayed and laid open before him, commanded the porter to draw out of money, if he had it. Whereupon the porter immediately without delay, in reverence to the authority of such a judicious umpire, put the tenth part of a silver Philip into his hand. This little Philip Seyny John took, then set it on his left shoulder, to try by feeling if it was of a sufficient weight. After that, laying it on the palm of his hand, he made it ring and tingle, to understand by the ear if it was of a good alloy in the metal whereof it was composed. Thereafter he put it to the ball or apple of his left eye, to explore by the sight, if it was well stamped and marked; all which being done, in a profound silence of the whole doltish people, who were there spectators of the pageantry, to the great hope of the cook's, and despair of the porter's prevalency in the suit that was in agitation, finally caused the porter to make it sound several times upon the stall of the cook's shop. Then with a presidential majesty holding his bawble, sceptre-like, in his

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hand, muffling his [69] head with hood of marten skins, each side whereof had the resemblance of an ape's face, sprucified up with ears of pasted paper, and having about his neck a bucked ruff, raised, furrowed, and ridged, with pointing sticks of the shape and fashion of small organ pipes, he first with all the force of his lungs coughed two or three times, and then with an audible voice pronounced this following sentence. The Court declareth, that the porter, who ate his bread at the smoke of the roast, hath civilly paid the cook with sound of his money. And the said Court ordaineth, that every one return to his own home, and attend his proper business, without costs and charges, and for a cause. This verdict, award, and arbitrament of the Parisian Fool did appear so equitable, yea, so admirable to the aforesaid Doctors, that they very much doubted if the matter had been brought before the Sessions for Justice of the said place, or that the judges of the Rota at Rome had been umpires therein, or yet that the Areopagites themselves had been the deciders thereof, by any one part, or all of them together, had been so judicially sententiated and awarded. Therefore advise if you will be counselled by a fool."

I have no means at present of tracing this story in its migration. It is one likely enough to have gone all over the world. But the question arises here, as in the case of the story of the man with the wen, have the Japanese received it in comparatively recent times, whether by way of China or from Arabian or Indian merchants, or later from Portuguese or Dutch missionaries or merchants, or does it belong to the most ancient cycle of Turanian legend, which may have existed all over Asia and Europe in times long antecedent to the dawn of history?

Recent discoveries have tended to show that the story of the Deluge and others which had previously passed for Shemitic or Aryan are really of Turanian origin, or at least were in the possession of Turanian tribes before they were current among Shemites or Aryans.

It is possible that further enquiries into the Japanese legends may throw some further light upon this strange but very interesting subject. Would not a complete translation of the Uji stories, and of the supplementary collection from which the "Man with the Wen" is taken, be worth the trouble of making?

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OBSERVATIONS ON THE CLIMATE AT NAGASAKI DURING THE YEAR 1872.

By Dr. Geerts.

[*Read before the Asiatic Society of Japan on the 17th March*, 1875.]

[71] The climate of Nagasaki is better known than that of any other place in Japan, because we have the most complete meteorological records of it. The observations formerly made at Desima by order of the Dutch Government and the continuation of these observations by ourselves extend over a period of twenty years.

Professor F. J. Stamkart calculated from the journal 1st January, 1845, to September, 1848, a first series of averages. The results of this elaborated report can be found in the Annals of the Royal Academy of the Netherlands (*Verhandelingen van het koninklijk Nederlandsch Institut van Wetenschappen*).

A second series of averages was calculated by the Royal Meteorological Institute of *Utrecht*, out of the journal kept at Desima by different physicians of the factory. These observations run down to September, 1855. The results, together with an excellent review, are published in the Annals of the said Institute over the years 1855 and 1856.

A third series calculated from the journal, kept at [72] Desima by *Pompe van Meerdervoort*, comprises the years 1857-1862, and was published at Desima in 1862.

Out of these three series a very valuble review was made by *J. van Gogh*, Captain R. N. Navy, and published in the Annals of the Royal Academy of Amsterdam and also in the Annals of the Meteorological Institute of *Utrecht*, for the year 1866, (*Overzicht van de heerschende winden en darby waargenomen barometerstanden te Nagasaki*).

In 1871 I received the necessary instruments for instituting meteorological observations, and for these I erected a station at the Japanese

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Government medical school of Nagasaki, and commenced my journal on the 1st November of that year. I have now the honour to present to the Asiatic Society a series of observations for two months during 1871 and for the whole of the year 1872, and these will be followed in a short time, by the results for 1873. Although my journal has been kept according to the rules of the international congress for meteorology in millimeters and centigrade degrees, I have thought it advisable to send to the Society the results reduced to English inches and Fahrenheit degrees, because it is still a fact, although very much to be regretted, that the scientific metric system and the centigrade thermometer have found up to the present time but few adherents among the public of England and America.

Before speaking of my observations, I may here mention the desirability that other observers in Japan should keep their journals according to the rules of the Congress held last year at Vienna under the presidency of Professor Buys Ballot of Utrecht. At the next Congress of international meteorologists which will be held in Utrecht in the month of September of this year, deliberation on many other points will be held having the object of promoting unity in observing and registering.

I am indebted to my learned friend Professor Buys Ballot for the communication of the minutes of the Congress, and will mention here the general rules adopted by the permanent Committee, for the sake of other [73] observers in Japan, who perhaps would like to know them. These rules are: 1st, Conformity of instruments and proved accuracy of the same; 2nd, Directions of wind to register with English initials N. NNE. NE. etc.; 3rd, averages of clouds with the numbers 0-10 (0=a perfect bright sky; 10=a thick cloudy heaven); 4th, The year commences with 1st January; the days commence at midnight; the hours are marked 0-12 A.M. and 0-12 P.M.; 5th, it is recommended to calculate the five days averages of *temperature* adopted by Dove. 6th, after each Lustrum, commencing with the year 5 n + 1 the results of observations of each station are published by the Congress in the same manner. 7th, the centigrade degrees are to be used, at least in mentioning the results of the barometer, (inches of Paris to be wholly abandoned).

I deem it unnecessary to prove the utility of adopting these rules,

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because it must be evident that by unity in registering and observing only we can satisfactorily add to our knowledge of the great atmospheric movements which take place over the whole globe.

In June, 1873 the Superintendent of the Danish Telegraph Company made an arrangement with me and other gentlemen in Hongkong, Shanghai and Amoy to transmit daily by cable the following observations, viz: reading of the barometer and the thermometer attached, direction of wind, force of wind, dry and wet thermometer, state of the weather, hours of rain, quantity of rain. These telegraphic records have been published at the telegraph station at each of the places every day at noon since July, 1873. We have adopted English inches and Fahrenheit degrees in their publication, because they are designed for the use of navigators in these waters, and these are chiefly English and Americans, who are seldom acquainted with the metrical system. It is much to be desired that Yokohama or Yedo should take a part in forming the telegraphic meteorological returns, and that the Meteorological Congress should find some means of financial aid towards the recording and transmission of these observations.

[74] The present observers on the China and Japan coast have all taken up their work without material profit or proper assistance. The latter is absolutely necessary if there is to be a perfect regularity in observing. Great credit is due to the Great Northern Telegraph Company, and its Director M. Dreyor, for the care with which they give their disinterested aid for the advancement of the meteorological knowledge of the China and Japan coast.

As I have already mentioned, these observations are made at the Physical School in Nagasaki, and the point of observation is 650 meters distant E.S.E. from the former place of observation at Desima. The reservoir of the barometer is placed 37 metres above the medium level of the sea, which height was determined by myself by levelling.

The hours of observations are 9 A.M., 12 M., 8 P.M. and 6 P.M. I was obliged to choose these hours, because I had to bring them into accord with my other daily occupations.

All observations are made with the same instruments, the correctness of which were before exactly determined. The position of the instruments remained unchanged.

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The direction of wind is given in true bearings (not magnetic). The magnetic deviation was determined by me on the 25th September 1871, with a magnetometer by Gauss. I found it to be 2 degrees 87 min. W.

The Anemometrical degrees are those of Admiral Beaufort with some slight alterations.

0 = Calm.
1, 2, 3 = Light breezes.
4, 5 = Moderate breeze.
6, 7 = Moderate wind.
8 = Strong wind.
9 = Very strong wind.
10 = Storm.
11 = Typhoon.
12 = All-destroying Typhoon.

[75] The barometer is a standard one of the Meteorological Institute with a vernier to read to tenth parts of millimeters, and the thermometer reads to tenth parts of centigrade degrees.

No fire is ever placed in the room in which the instrument is fixed, and the direct sunlight has no access to it.

All barometrical numbers in these tables are *corrected* to the freezing point (32 degrees Fahrenheit) and the level of the sea. Correction for capacity and capillarity has been made by the placing and division of the scale.

The thermometers were all examined in snow on the 18th December, 1870. All numbers of temperature are corrected. The psychrometer hangs on the N. N. W. side of the institution in the open air, but perfectly protected against direct sunlight.

Brightness of the sky.—In these tables we have adopted the old style, that is 0 represents a very cloudy dark sky; and 10 a wholly cloudless atmosphere.

Rainmeter.—This instrument stands at 46 meters above the level

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of the sea on the platform, which is erected on the roof of the school. At the same place the weather-cock with wind-guage is attached. The quantity of rain is measured every 24 hours.

Results.

Direction and Force of Wind.

The experience and journals of many seamen have long since shewn that, in the China sea, from the island of Formosa, along the China coast up to the Japanese Archipelago, two monsoons of different duration prevail during the year. These are the S. W. monsoon from June till September, and the N. E. monsoon from October till May.

Nagasaki is decidedly situated within the regions of these monsoons, but there is a slight variation in the direction of the north-east monsoon at that place. During June, July and August the S. W. monsoon prevails at Nagasaki perfectly in the same direction as in the China sea; the N. E. monsoon, however, turns more towards the N. and N.N.W., a fact chiefly caused by the geographical [76] situation of the place, which is wholly surrounded by hills of from 400 to 1,400 feet in height, except between the points of S.W. and S.S.W.

As is the case in the China sea, we find that in Nagasaki the north monsoon (for here it is more correct to speak of it as a north and not a N.E. monsoon) has more than twice as long a duration as the S.W. wind. September and sometimes the first days of October are the periods at which the S.W. changes to the North monsoon, whilst the change from the N. to the S.W. wind takes place much more gradually during the two months of April and May (and sometimes in the last days of March). East and south-easterly winds are comparatively rare in Nagasaki, although it must be said that these winds are the true rain-carriers for this place, as well as for a large part of the east coast of the Japan islands. It is nearly always sure that there will be rain if E. and S.E. winds prevail for one day or longer. This fact is easily explained. The E. and S.E. winds, which have travelled over the warmer parts of the Pacific Ocean must necessarily get saturated and yield their water when they are cooled by the vegetation on the Japanese coast, in the same manner as is the case with the S.W. wind on the west coast of Europe.

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In regard to the prevailing winds and the height of the barometer, the year may be divided into two monsoon periods, and in order to give a simple review of these periods I have constructed Tables 1, 1871, and Tables I. II. III. for 1872. These figures show how many times in each hundred observations the wind has been N. E. and S. W. and so on. The length of the triangle outside the circle gives, by comparison with the scale, the relative number of winds, which have prevailed during each period. If for instance the N. wind only should have prevailed in the month of December, 1871 (Table I. 1871), the radius N. would have had the length of the whole scale (100). But the N. wind blew only 23.2 times in each hundred observations, and therefore the length of the radius is 23.2 parts of the scale. We have placed the numbers expressing [77] the per-centage of wind directions inside the circle of the diagram.

It can immediately be seen from these diagrams that northerly winds have prevailed during the months of November and December, 1871.

The wind-rose on Table I. 1872, shews the direction and percentage of winds (*a*) over the whole year, 1872, (*b*) over the changing months April, May and September, (*c*) over the time of the S. W. monsoon in June, July and August, and (*d*) over the period of the N. monsoon, October, November, December, January, February and March.

The first diagram shows that N., S.W., N.E., N.W. winds are the most prevailing during the whole year, whilst S., S.S.E., S.E., and E. are much more rare.

The following diagram shows how in the changing months April, May and September, the direction of wind is very variable, and that N. and N.E. winds have still during these months a preponderance over the S.W. wind. The wind diagram c. shows clearly how the S.W. monsoon prevails in June, July and August, whilst diagram d. explains the N. monsoon.

Table II. contains diagrams made up from 1,000 observations formerly made at Deshima, during a period of 15 years. Although they agree in the main with our diagrams over the same months of the year, 1872, they differ slightly in some subordinate points.

They are, however, not very important, because the diagrams agree in the main points.

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Table III. 1872, contains the diagrams for each month of the year 1872, and can easily be understood after the explanations we have already given.

Table V. shows that the highest barometer prevails in the coldest months January and February, when the atmosphere has its maximum density, whilst the lowest barometer occurs in August, during the prevalence of the S.W. monsoon.

It is, however, a very remarkable fact, not easily to be explained, that during June, July and August at the [78] time of the S.W. monsoon, the barometer is higher during S.W. winds and the lowest with the northerly and N.E. winds. In the winter, when the N. monsoon prevails, we see the highest barometer, quite as in other countries, with N.N.E. and N.W. winds, and the lowest with S.W. winds, when the monsoon wind is disturbed. Thus we find that in each monsoon period the highest pressure of the atmosphere exists *when the relative monsoon wind reigns freely without disturbance.*

The greatest difference of barometer in 1872 was 1.29 inch. The fluctuations or differences between lowest and highest barometer are the following:—

January	0.78
February	0.66
March	0.74
April	0.61
May	0.86
June	0.89
July	0.71
August	0.60
September	0.38
October	0.57
November	0.74
December	0.86

It will be seen that the greatest fluctuation took place in May (0.86).

The highest barometer of the year was on the 19th February=30.52.

The lowest on the 31st July=29.23.

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The temperature of Nagasaki is largely affected by the warm current, *Kuro shiwo* or "black stream," which runs as another gulf stream along the whole east coast of Japan, and causes chiefly the much milder climate of the eastern coast as compared with that on the west coast. The meteorological *data* which have been procured on the west coast of Japan are unfortunately very few. It is, however, certain that a most decided difference of temperature is to be observed between places on the east and west coast of Japan. It would be of great value to have an [79] accurate journal of one or more places on the west coast, to show the very great influence of the Japanese Gulf stream.

Although in regard to direction of wind the year in Nagasaki is divided into two monsoon periods, it is not so in regard to the temperature of that place. The thermometer shews us that the year must be divided into *four* nearly equal seasons.

The lowest temperature in the open air (shade) was in 1872 on the 4th February=25.9 degrees Fahrenheit, and the highest on the 2nd and 3rd August=93.0 degrees Fahrenheit.

The coldest month is January with the medium temperature 41.2; the warmest month is August with the medium temperature 82.3. In the two months July and August the heat is quite tropical (81.9 and 82.3.) Inside the house the thermometer in 1872 never fell to the freezing point. The lowest temperature was on the 23rd January=35.6. The highest on the 2nd August=89.6.

The number of rainy days in 1872 was 122 or exactly one-third of the 366 days of the year. The quantity of rain over the whole year was 47.71 inches, or about 2.5 times as much as falls in London during one year and nearly twice as much as falls in Amsterdam. This year was characterized by a very short rainy season, which period ordinarily commences in the beginning or middle of June. In 1872 the greatest number of rainy days occurred in April, it having 15 rainy days with a fall of 11.04 inches. Next to April comes June with 18 rainy days and 5.66 inches of fall, then follows August with 12 rainy days and 5.78 inches of fall. October was in 1872 the dryest month, it having only 4 rainy days and 0.95 inch of fall.

December gives the largest number of misty days 19.1, although it

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must be observed that mist in Nagasaki exists chiefly in the morning and evening. Mist very seldom prevails during a whole day. Snow only fell in 1872 in January and February together on twelve different days.

[80] Thunder and lightning are rare in Nagasaki. The year 1872, however, embraced more thunder days than is usual. The number of thunder days during the year was sixteen; April alone had four.

The brighest month of the whole year was October (7.6) and the most cloudy month was April (4.5). In October and November the greatest number of cloudless days was observed (together 10).

Only three earthquakes were felt, and particular care was taken in observing them. None of the earthquakes were very severe, and none of these caused any accident.

The number of storms in 1872 was 19. April gives the largest number (5), and then March with 4 storms. In September, October, November, January and February no storms took place in 1872.

In Nagasaki no typhoon occurred during 1872.

The relative humidity was greatest in April (87), and after that July (79). The least humidity occurred in November (66), October (67) and February (67).

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ASIATIC SOCIETY OF JAPAN.

A meeting of this Society was held on 17th ultimo, at the Grand Hotel, Dr. Hepburn in the chair. The minutes of the last meeting were read and approved, and it was announced that the following gentlemen had been elected ordinary members of the Society: Dr. Müller, Yedo; Mr. F. R. Wetmore, Yokohama.

The Rev. Mr. Syle then proposed that in view of the increased number of the foreign community residing in Yedo the Society's meetings should in future be held at Yokohama and Yedo alternately.

Professor Ayrton said he cordially seconded the motion made by Mr. Syle, because, in addition to adding to the convenience of the few of the Tokei members who now regularly attended, he considered that alternate meetings in that city would largely increase the utilty of the Society, since there were resident there many men who, from their ability and profession, were able to contribute valuable papers, but who now but rarely coming to the meetings scarcely bore in mind how important such a Society as this might ultimately become. Also he thought that of those who were anxious to come many were completely deterred by domestic arrangements preventing them leaving home for the night. The resolution was unanimously agreed to.

[81] Mr. Goodwin then read his paper "On some Japanese popular Legends."

At the close of the paper Professor Ayrton asked whether the tales Mr. Goodwin had related were really proved to have any connection with one another. Their apparent identity was indeed very striking, but he thought there were other stories somewhat resembling the above, and which would tend to shew that in any country there were many tales all more or less of the same kind, so that among the number there might happen to be accidentally a legend in one country almost identical in illustration with the legend of another country; for instance the moral of the tales of "the Wen" and of "the Hunchback" is that of the "Forty Thieves" in the Arabian Nights and of the "Tongue-cut sparrow" as told by Mitford. Again, the tales of idle wishes narrated to us by Mr. Goodwin are somewhat similar in character to the German tale of the "Three Black Puddings." The study of the legends of different countries would, however, as it becomes gradually developed, lead to this result, if it led to no other, that it would shew whether or not legends similar in character had a common origin, and consequently such a study would certainly be valuable.

Dr. Hepburn agreed in the main with Mr. Ayrton, and adduced the fact that proverbs teaching identically similar lessons are to be found among all nations.

Mr. Howell said that the identity of the moral would not be sufficient to establish the claim to relationship, but that identity of illustration went far to prove it.

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A paper by Dr. Geerts entitled "Observations on the Climate of Nagasaki in 1872" was then read, in the absence of the writer, by Mr. Brunton.

Mr. Ayrton remarked that mention had been made in Dr. Geerts' paper of the observations being taken at the time appointed by the International Congress. He would be glad to know whether Dr. Geerts observed four times or only twice during the twenty-four hours. The suggestion contained in the paper that observations made at Tokio, or Yokohama, would be very valuable combined with those of Nagasaki, reminded him of the instruments offered some time back to the Asiatic Society by the Signal Bureau at Washington, the conditions of the acceptance being that the observations should be recorded at the hours settled by the International Congress. The matter was, as far as he remembered, placed at the time in the hands of a committee consisting of Mr. Brunton and Dr. Murray: he would be glad to hear the result, if the plans were matured. Additional interest has been given to Meteorological observations by Professor Balfour Stewart's review of Provost Lloyd's "New Treatise on Magnetism," in which it is shewn that there is a strong reason for believing that the variations of the magnetic elements of a place are produced by atmospheric disturbances in the upper regions: firstly, because the rare air being a partial conductor would have generated [82] in the electric currents due to its passage across the earth's lines of force, which currents would attract or repel magnets on the earth's surface and would also react on the earth's magnetism: secondly, because it has been shewn that there is a connection as regards periodicity between the connection currents of the earth and the sun's spots, between cyclones and hurricanes and the sun's spots, and between the sun's spots and disturbances of terrestrial magnetism, so that there is every reason for thinking that variations of meteorology are associated with variations of terrestrial magnetism.

The Meeting then terminated.

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NOTES OF A JOURNEY FROM AWOMORI TO NIIGATA, AND OF A VISIT TO THE MINES OF SADO.

By J. H. Gubbins, Esq.

[*Read before the Asiatic Society of Japan on the 14th April, 1875.*]

[83] The Bay of Awomori, at the extreme end of which stands the town of the same name, is among the best in Japan, the harbour being well protected, while there in deep water close to the shore on all sides.

The town of Awomori, which is the seat of the Awomori *Ken*, is extremely uninteresting, and there was comparatively little left to see of it on the occasion of our visit, as more than half of the place had been destroyed by fire the year before. Its *Meibutsu* or production for which it is famous, is a kind of sweetmeat made of beans and sugar. No particular industry is carried on, but a considerable trade passes through the town, as it is the favourite place of communication between this part of the country and Hakodate, owing to its proximity to Hirozaki, which was formerly the castle-town of the district; while on the other hand it is conveniently situated with respect to the great cattle-province of Nambu. Cattle and rice are the chief exports to Hakodate, while from that place skins, fish, and foreign merchandise of all kinds are imported. Another thing which tends to give a certain importance to [84] Awomori is the fact of its being the principal outlet, so to speak, of the large yearly emigration of the country people who flock in large numbers in the spring of every year to Hakodate—either to join the fisheries on the coast of Yezo, or to pick up what living they can in Hakodate and its neighbourhood, returning as regularly in the autumn to their native places.

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Considering the comparatively short period during which out-door work can be carried on in the northern parts of Japan, it seems strange that these people should choose for their periodical flitting the very time of year when, as one would be apt to think, their labour would pay them best; and the reason assigned—which the fact of the yearly emigration itself proves to be in a measure correct—namely,—that the fisheries are so lucrative that the amount which they earn by this livelihood serves not only to keep them through the winter months, but to defray the cost of their journeys to and fro—leads us to infer that agriculture in these northern districts of the country is not a remunerative pursuit. This emigration is not confined to the male portion of the population; the women emigrate in just as large if not in larger numbers than the men.

At Awomori commences the long chain of hills which runs down intersecting the country from north to south as far as Takasaki and on through Shinshiu. A lesser ridge of hills has a direction from north-east to south-west, but is irregular, there being breaks at intervals and some of the peaks being much higher than others. In this last chain is the mountain Iwakiyama, which like so many other mountains in Japan is shaped like a volcano, and stands out a little distance from the rest of the chain. It is of course impossible to form any accurate conclusion as to the height of a mountain without ascending it, but judging from the size of the hills near Iwakiyama over which we passed, we estimated its height roughly at about 5,000 feet.

Proceeding from Awomori towards Namioka, the first post stage on the road to Hirozaki, one passes over the [85] last-mentioned ridge of hills at a point called the Tsugaruzaka, the ascent of which is somewhat tedious, though there is a nice view to be had when the top is reached, of Iwakiyama and of the valley in which Hirozaki lies. In the district between Awomori and the Tsugaruzaka the chief product is of course rice, but the cultivation is altogether very scanty. Some of the hills were covered with a coarse-looking medium-sized bush which, seen from a distance, bears a certain resemblance to the mulberry-plant, though the leaf is larger. The name given by the Japanese to the plant is *Gomagiri*, and the bark is employed to make the incense-sticks in common use in Japanese temples. The *Sasa* or scrub-bamboo, dwarf-oak, and ordinary

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pine grow everywhere in great profusion. On the other side of the Tsugaruzaka the country opens out into a broad valley in which the villages of Namioka, Fujizaki and the town of Hirozaki are situated, and which is bounded by the two ranges of hills already mentioned. The scenery loses much of its desolateness, the broad valley full of rice presenting a cheerful contrast to the country already passed through. The valley is watered by the Hiragawa, which flows through it from North-east and South-west, and is crossed by the road some two miles from Namioka. The river when we saw it was only about thirty yards wide, but in flood it attains a considerable breadth. The houses in the villages along the road are almost all built of clay with slight wooden frames, but the better class of buildings in the villages and the houses in the towns are ordinary wooden structures, presenting in point of architecture no marked difference to those seen in Yedo and its environs. I should not forget to mention the water-melons, which one sees everywhere growing in the wildest profusion, sometimes trailing up the sides of the houses and almost hiding the roofs altogether from view with their rich luxuriance of foliage, and at other times forming the hedge-row to a garden. All the way from Awomori to Niigata water-melons are grown, and as they are also found in great quantities down south, this plant may be said to be [86] almost as universal a production of Japan as the staple product, rice.

Hirozaki is an old castle-town containing some 30,000 inhabitants. By old castle-town is meant that the town in former days was the residence of a northern Daimio, and possessed a castle. This is now no more. It was burnt down four years ago and the site is now occupied by barracks for the 800 soldiers who are quartered in the town. The stream called the Tsudzubudzugawa intersects Hirozaki.

The towns here in the north are built in a curious style. Though, as I have said, the houses in the towns have no particular peculiarities of architecture to distinguish them from those further south, yet owing to the heavy snow-fall in the winter, when the snow attains an average depth of 12 or 13 feet, the roofs of the houses and the verandahs are built very strongly, and these latter are made continuous—each verandah connecting with those of the houses on each side—so that in winter

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however great the depth of snow, the inmates of the houses are able to go in and out of their dwellings with comfort and even to take a certain amount of exercise. As is the case in all mountainous localities, the roofs are further protected by large boulders and stones, which are placed on them in the usual way.

Hirozaki considered in any way is a very uninteresting place. All old castle-towns in Japan have more or less a dull and dead-alive atmosphere pervading them, which has a depressing effect upon a new comer, and Hirozaki is no exception to the rule. Owing to the increasing trade passing through Awomori, Hirozaki has been quite superseded by the former place, and though still a large town, business appears to be almost at a stand still. Very good apples are grown in the neighbourhood, and a kind of green lacquer-ware is manufactured, which, however, though of some repute in the locality, is held in small estimation at the capital.

It was a long day's ride from Hirozaki to Odaté, our next stopping place. After emerging from the valley the [87] road led us over the crest of a densely wooded hill some 500 feet high, and it was all the ponies could do to carry us up, the path being entirely composed, as is not uncommon in mountain tracks in Japan, of small logs of wood cut to the same size and laid so as to form steps up the hill side. A curious feature of the scenery further on, was that the hills on our left were covered with fine turf, but otherwise destitute of vegetation, with the exception of some dwarf-shrubs scattered here and there, whereas those immediately opposite these, and to the right of us as we went along, were clothed with the densest vegetation from their bases to their summits, chestnuts and a species of elm being chiefly noticeable. Fortunately for our rate of progression our road skirted the sides of the first named hills, and we were thus enabled to push on at a rapid rate. We saw numbers of horses grazing on the hills all round even in the steepest and most precipitous places, and now and again some of these, answering to the call of their owners who had come out to collect them, would come bounding down the hill sides uttering shrill neighs and indulging in the wildest of gambols. Our own steeds betrayed an intimate acquaintance with the geography of the neighbourhood, which could only have been acquired in this way, and shewed at times an evident inclination to join their friends playing in the vicinity.

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Of Odaté, as of Hirozaki, there is little to be said. Like Hirozaki it also possessed a castle once, and was the residence of a *Hatamoto*, and like that of Hirozaki the castle is no longer in existence. The town holds about 4,000 inhabitants. The principal products of the district are rice and the indigo plant. Curious looking clay ovens were to be seen along the road side as we came from Hirozaki, in which this plant is subjected to some mysterious process before the dye is extracted. Tea has latterly been grown, but not as yet with much success.

We found on arriving at Ôdaté, that we should have to continue our journey by boat for 18 *ri* as far as a place called Tsurugata, as the bridges had been all swept away by recent floods, which floods are of common occurrence, [88] taking place five or six times in the course of a year. The Yonetsurugawa, the river which proves so troublesome, rises in the district of Kadzunogôri in Nambu and flows into the sea on the west coast a little below the town of Tsurugata.

The boats or rather canoes used on this river are of two sizes. It was in the smaller kind that we embarked. Their shape is somewhat peculiar, and a description of them may not be out of place. They are flat-bottomed, long and narrow, the length of the one in which we embarked being about 25 feet, while the breadth was only 2½ feet. They lie low in the water, there being hardly a foot of free-board, and the sides are slightly rounded so as to curve inwards. The draught of the smaller boats, such as the one in which we were, I should take to be about six inches. The prow is very long and high, and does not project sharply outwards, as is the case with ordinary Japanese boats, but is continued in a line with the body of the boat in a gradual long curve. The breadth of these canoes is the same all over, except at the bows, where they become slightly narrower. They are worked by two boatmen. One of these stands in the stern of the boat and steers with a long paddle; the other either sits in the bow and rows with a very unwieldy paddle fixed in rowlocks made of rope, or else stands up with a pole to ward the canoe off from the rocks and keep it well into the stream. The canoes seem on the whole adapted to the locality, and are managed with great skill when shooting the small rapids which occur here and there on the river.

Swinging down with the current at some six miles an hour, we

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passed through a beautifully undulating country, the scenery being very pretty at times and very picturesque all along. There is a fine view about twelve miles above the village of Tsurugata. Here the hills on each bank rise to a height of 300 or 400 feet, and the stream gradually grows narrower and narrower, until at last making a sharp turn to the right it dashes into a steep gorge. From the boat, as it is whirled down amidst the [89] strong eddies of the current, the view of the hills overhead, shaded as they are by dark pines and cryptomerias, is very grand.

From Suyama close to Tsurugata, where we landed, on to Kado the country is beautiful. Large tracts of rich meadow-land, varied here and there by small bits of lightly wooded country, extend down to the sea on the one hand and as far as the hills on the other. In these meadows wild boars, so our guides said, are frequently to be met with even in the day time. Beyond Kado the country becomes more cultivated; the villages are more numerous and more thickly populated, and the houses composing them differ from those further north in not being mere clay structures but built of wood in the usual style. Near this latter place we saw the ordinary bamboo for the first time, not growing wild but carefully cultivated in a hedgerow with other trees. Shortly after leaving Kado an extensive lagoon, about 15 miles long by five broad, as far as we could roughly estimate it, and connected with the sea by an arm so narrow that the first impression formed by the traveller of it is that it is an isolated piece of water, comes into view on the right. Near the outlet to the ocean, as if specially stationed there to guard the entrance, are two high hills called respectively Honzan and Shinzan, or old and new mountain, the latter being the name of the higher of the two. As we proceeded further the meadow land gave way entirely to cultivation. The *uri* or small melon seemed to be the chief production of the district, and those we saw were much larger than those grown near Yedo.

A nice view of Kubôta, the capital of the Akita prefecture, is obtained a short distance from the town, which is situated in an extensive valley at the foot of Taiheisan, a mountain of some 4,000 feet, and on the river Omogawa. This river has its source at Iwasaki and flows into the sea on the west coast near Kubôta. Kubôta has a population of

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60,000 inhabitants, and though, like Hirozaki, an old castle-town, has considerably more life in it than the latter place. The houses, though builit like those at Hirozaki [90] have a more finished appearance, the streets are wider and better kept, and there are some good shops and fine large tea-houses in the town. Jinrikisha ply to and fro, the roads, however, being too bad to admit of their being used outside of the suburbs, the streets are thronged with a busy crowd, and there is every sign of a brisk trade being carried on. The *Meibutsu* of Kubôta are *Tsumugi*, a silken fabric much used in making *hakama* and *kimono*, and the pattern of which is usually black and yellow in stripes, white *Chijimi*, a species of crape with a raised woof which fetches a high price at Yedo, and *Karakami*—the sliding-doors of Japanese houses.

Near Kubôta we saw large tracts of woodland fenced in, and at certain spots in the wide enclosures thus formed were fixed posts notifying that the land in question belonged to the *Kaitakushi* or Agricultural Department. It is gratifying to see that the Japanese Government are at length disposed to turn their attention a little nearer home, and perceive that Yezo is not the only place where the influence of the *Kaitakushi* may be exercised to advantage; for certainly there is in the northern districts of the main island great room for improvement, and owing to the more genial accessories of position and climate the labours of the Colonization Department in this direction, where such a large field for agricultural experiments is open to them, would, it is presumable, be far more likely to be attended with success than in a country with the Siberian climate of northern Yezo—where millions of dollars have been expended—with what result is only too well known.

Hitherto all the way from Awomori to Kubôta and on as far as Murakami we found that a knowledge of the language as spoken at Yedo and the neighbourhood of the capital was of very little use when speaking to the country people, though of course officials both in towns and villages can invariably speak the Yedo dialect. The dialects vary in every town to a certain extent. Near Awomori the Nambu dialect is the one in common use. Owing, however, to the yearly emigration of the country [91] people before alluded to, a medley of many different dialects is the result, which to a traveller is utterly incomprehensible. The harsh language of Kaga, the dialects of Nambu with its peculiarities

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of intonation, expression and pronunciation, the nasal twang which distinguishes the dialects spoken near Hirosaki, and in the old province of Aidzu—combined with the hard and clipped language of Hakodate, in itself a compound of many dialects, when jumbled up together combine to produce a jargon the disagreeable effect of which on the ear of a stranger may readily be imagined. As an instance of the local peculiarities of dialect which fell under our notice, I may state that we met with no less than five different expressions for the common word "*Yes*,"* namely *Hé*, *Hai*, *Né*, *Na*, and *Chi*. By this alone some idea may be found of the difficulties which stand in the way of a traveller understanding and being understood by the people with whom he is thrown into communication.

The coast line from Hirazawa on loses much of the dreary desolateness noticeable between Kubôta and Hirazawa. Hitherto the coast has extended in a straight unbroken line varied by no indentations or bays, while endless sand, and nothing but sand, has reigned uninterrupted everywhere. Here, however, the monotony is broken by several tiny bays, the entrances to which are almost concealed by high fierce-looking rocks which bar the passage to all but small fishing boats, and on the shores of which stand little fishing villages, whose inhabitants were actively engaged when we passed by in the ordinary pursuits of a fishing population. The character of the country too softens and improves. The hills run down close to the water's edge. Wild lilies of a bright orange colour, harebells and wild pinks grow in great profusion, and little hillocks rich in trees and shrubs are dotted all over the rice-fields. Such is the country between Shokoshi and Kosagawa.

The road from Shokoshi on towards Sakata lies along [92] the tops of high cliffs overhanging the sea and over the Misaki-togé or Pass of the Three Promontories. Owing to the hills all round, the view of Chôkaisan, one of the highest mountains of Japan, is constantly changing, although the mountain is clearly seen from a long distance back, yet it is only when drawing near Sakata that one obtains a good view of it, and of the chains of low hills stretching away from it, so as to form an accurate idea of these. The whole presents a curious sight.

The volcano Chôkaisan, which the natives of the place are fond of

* The affirmative "Yes"—"*Sayo*," as opposed to "No," is of course not meant.

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likening to Fujiyama, stands out boldly against the sky, rising up to a height of 8,000 feet and towering far above the low hills which surround it. Seen as we saw it, it forms as it were the centre of a circle of which only half is visible, or of a spider's web, and from this centre three ridges, like the radii of a circle or the principal threads of a web, run westwards down to the sea and are continued out into it in three promontories, forming two bays, and thus giving the name of Misaki Togé to the Pass, whilst a fourth chain of hills extends in a south-easterly direction ending shortly above Sakata. Pilgrimages are made up Chôkaisan, the mountain being ascended from Fukuura, a small village about 11 miles from Sakata.

The road all the way from Hirazawa is pretty and the scenery so varied that the journey seems shorter than it really is, and thus when we reached the valley in which Sakata lies, and, entering it from the North close to the foot of Chôkaisan rode through the whole length of it up to Sakata, we were not too fatigued to be able to enjoy the rich landscape spread out before us.

The valleys in Japan may appear to some monotonous and uninteresting. They may say that they are all so alike that the eye becomes wearied by constantly dwelling on the same views. But it is not so with a real admirer of Japanese scenery. True it is that these valleys possess in a great measure a certain similarity, and that apparently, to some, the same scene is often repeated. But these valleys are peculiar to the country: it is in them [93] that we find lurking the special charm attaching to Japanese scenery, and to us there is some new beauty in each peculiarly its own. However much the principal features of valley scenery are repeated, and it by no means follows that they always are, there is ever some new accessory of mountain, forest or river, which lends a special interest to each, and which is easily discernible by those who are in any way close observers of nature. Hirozaki, Kubôta, Sakata, and Murakami are all situated in valleys, but beyond a certain similarity which is always to be met with in the same geological formations, the valleys in which these towns lie are far from being counterparts one of another. The valley of Kubota presents a striking contrast to the others on account of its vast extent, and in each of the three others the prominent features of the landscapes, not to

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speak of the positions of the towns, which differ in each case, have a distinct individuality which forbids the idea of any monotony or sameness pervading them. We must plead guilty to a fondness for Japanese scenery. In spring, when everything appears dressed in its brightest colours, fairer landscapes are to be seen here perhaps than in any other country. In autumn there is also as much variety, and the many coloured tints which light up the hillsides and bring the woods out in their sombre richness of colouring have more attractions for some than the brighter views of spring time. But this is digressing.

The town of Sakata, like all Japanese towns, is a very straggling place. It holds about 12,000 inhabitants. Though a considerable trade is carried on in the place it has no *meibutsu*, nor is any special industry as far as we could learn carried on in it. The principal street deserves a word said about it. The houses forming it stand each in a separate enclosure, and as these enclosures are planted with evergreens and other trees, the effect is singular—giving the town the appearance rather of a big village than of a town

When there we did not lose the opportunity of visiting the grave of Mr. Smith. The site chosen for it is a quiet [94] retired spot in a corner of the graveyard of the principal temple of Sakata, and there are only one or two recent graves in the immediate neighbourhood. The tomb is fenced in with a wooden railing, and a simple slab of stone with the name, age and residence in Japan of the deceased marks the head of the grave. We were conducted to the spot by the head-priest of the temple, who seemed to take a certain pride in pointing out that everything was kept in excellent order.

Murakami lies just at the point where the defile leads out into a broad valley, which is shut in on the north and east sides, but is open on the west and south. Also an old castle town, it has a very deserted appearance. The castle is in ruins, though some portions of it here and there are still standing. The *Meibutsu* of Murakami are lacquer (though lacquer ware is not made here in any quantity) salmon and tea, the latter having improved much in quality during the last few years. A great deal of pine-wood from the adjacent forests is cut into lengths and sent to Niigata and even to Yedo to be made into chopsticks, so this may also be included among the *Meibutsu*.

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Niigata is so well known that little need be said of the town itself. Everybody is aware what difficulties in the shape of insecure harborage and imperfect road communication with the capital have stood in the way of the development of its trade, and how, in spite of these drawbacks, the town has gradually increased. It is also known how much the town has gained by the appointment of the present governor; how a prison, a hospital, a school conducted on the new system, and barracks have sprung up, and with what good results the care bestowed in laying out new streets, in restoring the old ones, and in cleansing and improving the network of canals which intersects the town, has been attended.

Under the energetic administration of the present Governor the town has made evident progress, and if the necessary works which are required for the formation of a good harbour were only carried out, if the road [95] communication with Yedo were improved, and if the various resources of the neighbourhood were drawn out as they should be, it would not be long, we venture to predict, before Niigata took a leading place among the towns of Japan.

But it is expecting too much to suppose that all this will be done. Even the scheme for constructing a harbour will, it is to be feared, not be carried out. The towns-people are naturally anxious for the execution of a plan which, if successful,—which there is every reason to suppose it would be—must be of great benefit to their town. The local officials are for reasons of their own desirous of being entrusted with the works. The plans have been drawn up, the estimates, begun long ago, should be finished by this time, but here the matter will probably rest. The development of the scheme presents certainly great difficulties, though not greater ones than modern engineering can surmount. But it necessitates a considerable sum of money, and money the Japanese Government are for various reasons chary of granting. The question will probably be indefinitely shelved, and if the Government ever do take it into their consideration, it will probably be only when it is too late to do any good, and the opportunity will thus have been lost.

Sado, which lies opposite to the mainland off Niigata, may be reached in two ways—either by going direct from Niigata to Yebisu, the Northern Harbour, or by proceeding from Niigata to Teradomari—a

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village 80 miles south of Niigata, and thence to the south-east point of the island. The former is the longer route by sea—being 40 miles,—but though by taking the latter route one saves half the distance by water, yet it involves a good day's journey overland from Niigata to Teradomari.

The former may be said to be the preferable route at ordinary times, but in the stormy season the latter is the best. The Bay of Yebisu, the northern harbour of Sado, is a fine bay, being ten miles long with an average breadth of a mile, and affords good protection to shipping, so that in bad weather ships lying off [96] Niigata put in here for shelter, but it is unfortunately open on the north side, and consequently in northerly gales, which are very prevalent during the winter months, vessels have to make for the Bay of Omi, a small harbour on the east coast, or Futami Bay, which is on the southern end of the island. At Yebisu there is a temple picturesquely situated on the crest of a steep hill, and from here to Aikawa, the locality of the mines, the scenery is tolerably pretty, and the road just before Aikawa is reached goes over a pass some 500 feet high.

Sado is well known on account of the gold mines to which it owes its importance. Aikawa, the chief town of Sado, and the head-quarters of the local administration, lies at the extreme south of the island. It has a population of 10,000 inhabitants, but the rest of the island is but thinly populated. The road connecting Aikawa with Yebisu, the small town from which the northern bay takes its name, is the only decent road on the island, and we fear we must plead guilty to the charge of "damning with faint praise," as all that can be said in its favour is that it might be worse. There are several villages at certain distances along this route, but the western and north-western portions of Sado are mountainous and almost totally uncultivated.

From the fact of there being gold mines in Sado, one is naturally inclined to look for signs of a certain degree of prosperity among its inhabitants, but the reverse of this is the case. The villages are wretched and dirty in the extreme, and the people appear to be miserably poor. What natural wealth it possesses has done little for the island, if we may judge from outward appearances. Even Aikawa, which should be a rich thriving town, has the appearance of an ordinary

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fishing village. The upper part of the town, where the Kencho and mining office are situated, is not so bad, but in the lower town dirtiness and poverty prevail in a very marked degree, and the houses are mostly wretched hovels.

As a natural consequence labour is absurdly cheap in [97] Sado, and travelling therefore very inexpensive,—the charge for one coolie per day being 2½ sen.*

The mines are within a short walk of the Mining Office and are prettily situated in high hills. The height of the highest of these hills is 1,100 feet, but the principal entrance to the mines is only 700 feet above the sea-level. The gallery which one enters here—the only one which can be explored comfortably—is fitted with a tramway, and extends for a distance of 800 yards with a slight ascent into the hill, when three dark and uninviting shafts are reached—one descending to the left—another to the right—and the third leading straight into the heart of the hill. This latter has been disused for some time, and has only lately been reopened. We had sufficient respect for our clothes, in the absence even of other deterrent reasons, not to yield to any inducement which might be held out to us to prosecute our researches underground any farther, and indeed there were risks to be run which we little dreamt of when we committed ourselves to the care of our guides. Every now and then a huge truck full of ore would come rolling down the tramway on its way with its load to the mouth of the gallery, which forced our party to have recourse to a general '*sauve qui peut*' in the nooks and crannies within reach, and inexperienced as we were, it was as much as we could do to save ourselves from annihilation by clinging closely to the sides of the subterraneous passage.

Since the time the mines were first opened they have been subject, at certain intervals, to inroads from water, and on the way from the mining office we passed several old shafts long since abandoned owing to this reason. From the primitive character of the old workings, it naturally followed that from time to time casualties and loss of life resulted from the water coming in. What up to sixty years ago used to be the principal entrance to the mines, was at that date the scene of

* This it should be borne in mind is the Government rate.

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one of these catastrophes, when no less than 800 people are reported to have perished. That [98] in the face of these accidents and the danger attaching to mining operations conducted when modern appliances and engineering skill were as yet unknown, the works should have been proceeded with,—says something for the perseverance of the local Japanese, but probably their greed for gain induced them to overstep the bounds of prudence, and the very ignorance of the miners of the common laws on which engineering is based possibly made them underrate the dangers to which they are exposed.

Of late years the water has been gradually accumulating to such an extent as effectually to obstruct the working of the mines, and in some shafts, we were told, the water had attained a depth of 15 feet. With a view, therefore, to freeing the mines from this obstruction, a survey of them has been instituted and the necessary plans and estimates are being prepared. The cost of removing this obstacle will, it is said, be very great, as it is calculated that it will take quite five years to get the mines into good working order, but it is also equally the general opinion that unless the requisite measures to this end are speedily put into execution the mines will eventually have to be abandoned, as they cannot otherwise be worked to advantage.

There is, however, a large quantity of ore on hand, enough, it is stated, to occupy two years in smelting. The new smelting works, which have only recently been completed, will thus come in very useful.

The tramway which was laid down three years ago for the conveyance of the ore from the mines to the towns is still in existence, but the tramway system was not found to work well. Owing to the carelessness and ignorance of those in charge of the tramways, accidents were of constant occurrence, and moreover, labour being so cheap, it was found to be just as economical to employ manual labour. Another consideration which probably had some weight is that the conveyance of the ore in the old way from the mines gave occupation to a considerable number of people, and for this reason alone the tramways were very likely unpopular. Women are chiefly employed in the transport [99] of ore. They receive 4 *sen* a day and are supposed to make three or four trips to and fro in that time.

In spite of the high quality of the ore extracted from them, the

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cheapness of labour, and the favourable situation of the mines with regard to the town, it is yet a fact that the Sado mines are worked at a loss. On account of the smallness of the population, and owing also perhaps in a measure to that aversion to a change of locality which is common to all Japanese, all the inhabitants of the island are more or less related to each other, and thus if one obtains an official position, it is generally not long before his numerous relations are all similarly provided. Consequently the number of officials employed in the Mining Office and *Kenchô* as compared with the amount of work to be done is perfectly ridiculous.

Not only do the mines not pay but they are a source of considerably expense to the Government. We actually heard it stated on good authority, the statement being subsequently confirmed on our return to Yedo, that in one year $60,000 worth of gold was forwarded to Yedo, but that in order to obtain this $75,000 were sent from the capital to meet the working expenses. Unless a radical reform be effected, one can foresee only one result from a state of things like this.

ITINERARY OF ROUTE FROM AWOMORI TO NIIGATA.

Awomori to Shinjô	1	*Ri*	27	*Chô.*
Shinjô to Namioka	4	"	00	"
Namioka to Fujizaki	2	"	20	"
Fujizaki to Hirozaki	2	"	18	"
Hirozaki to Ikarigashuku	6	"	00	"
Ikarigashuku to Shirazawa	4	"	18	"
Shirazawa to Odate	2	"	19	"
Odate to Kŭwa	0	"	18	"
Kŭwa to Tsurugata, by river	13	"	00	"
Tsurugata to Suyama	1	"	18	"
Suyama to Toyoôka	2	"	06	"
Toyoôka to Kado	2	"	12	"
Kado to Shitoidzu	2	"	32	"
[100] Shitoidzu to Abukawa	2	"	00	"
Abukawa to Minato	3	"	34	"
Minato to Kubota	1	"	18	"
Kubota to Araiga	1	"	02	"
Araiga to Nagatama	1	"	28	"
Nagatama to Michigawa	2	"	00	"

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Michigawa to Madzugasaki	1	*Ri*	18	*Chô.*
Madzugasaki to Ichinowaki	3	"	00	"
Honjô to Hirazawa	3	"	18	"
Hirazawa to Shôkôshi	3	"	00	"
Shôkôshi to Kasagawa	3	"	00	"
Kosagawa to Miga	1	"	18	"
Miga to Fukuura	1	"	03	"
Fukuura to Sakata	6	"	00	"
Sakata to Hamanaka	3	"	18	"
Hamanaka to Ôyama	2	"	25	"
Ôyama to Sanji	3	"	25	"
Sanji to Adzumi	3	"	00	"
Adzumi to Nedzumigahiki	2	"	25	"
Nedzumigahiki to Okawa	1	"	18	"
Ôkawa to Kadzuki	1	"	08	"
Kadzuki to Nakamura	2	"	25	"
Nakamura to Ôsawa	1	"	00	"
Ôsawa to Budo	2	"	00	"
Budo to Shiunomachi	2	"	00	"
Shiunomachi to Saruzawa	1	"	18	"
Saruzawa to Murakami	2	"	08	"
Murakami to Iwafuné	1	"	30	"
Iwafuné to Shiuya	1	"	07	"
Shiuya to Momozaki	0	"	20	"
Momozaki to Tsuji	2	"	18	"
Tsuji to Manogawa	3	"	00	"
Manogawa to Niigata, by river	7	"	00	"
Total distance in *Ri**	126 *Ri* 34 *Chô.*			
Total distance in Miles	317½ Miles.			

* 36 *chô*=1 *ri*. 1 *ri*=2½ miles.

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ASIATIC SOCIETY OF JAPAN.

[101] The Regular April Meeting of the Society was held on Wednesday, the 14th, at 5 p.m. at the Imperial College, Yedo, in the Reception Room, which had been courteously tendered to the Society for the purpose by the Director, Y. Hatakeyama, Esq.

The chair was taken by Prof. Murray, Ph. D., who congratulated the members on the fact of holding a meeting of such a Society, for the first time at the capital of an empire so progressive as that of Japan.

After reading the minutes of the last Meeting, the Secretary announced, as new members, Mr. Charles H. Dallas; Mons. Conil, and Professors R. W. Atkinson, R. Smith, and D. Marshall. The donation of a case of Butterflies by H. Pryer, Esq., was also announced, likewise the receipt of Journals of the Bombay Branch of the Royal Asiatic Society.

A motion was made by Dr. Murray and seconded by Dr. Antisell to the effect "That the Council of the Society be requested to make arrangements for giving a reception to the officers, and especially the Scientific Corps, of H.M.S. *Challenger*."

In the absence of the writer, the Hon. F. R. Plunkett read a paper "Notes of a Journey from Awomori to Niigata, and of a Visit to the mines of Sado," by J. H. Gubbins, Esq.

Mr. Dallas spoke of the dialects heard in the region referred to in the paper as being very unlike the language spoken at Tôkiô; and promised to present an account of the Yonezawa dialect soon.

Dr. Antisell remarked that the description of the mountain ranges given in the paper was interesting. Although not acquainted with the region, yet he recognised in these ranges some similarity to the mountain systems of Yezo and farther north. In the northern part of the Empire there were two distinct ranges of hills; one coming directly from the north, a continuation of the chain in Karafto, which, after passing down south along the west shore of Yezo, is found in Dewa and farther south. The second system of mountains is that entering Yezo from the Aleutian isles and Kamtschatka, running N. 20—25 E. and S. 20—25 W. and crossing in places the first described system: it is from the existence and crossing of these chains that Yezo derives its quadrangular form. These two systems have very different mineral contents for their axes: the first has essentially a granitic and felspathic axis, produced perhaps by shrinkage, and is slow of decomposition of its minerals forming thin soils; the second has an axis plutonic or volcanic yielding basalts, traps, and diorites, decomposing readily, forming deep and rich soils; hence the different kinds of vegetation described by the writer as occurring on the slopes of the two chains. Where the two chains cross,

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also, there is found a rolling country closed up at the North and East by hills, valleys opening to the [102] South and West. This volcanic chain is secondary in the district described, but in Yezo, and again in Kiushiu island, it attains great prominence.

In reply to a question of Mr. Schenk, Dr. Antisell also stated that the method of getting the gold out of the quartz, at the Sado mines, was by stamping—as in California—only that wooden stamps were used.

Reference having been made by Prof. Smith to the mode of getting rid of water, the Secretary stated that this, and the other processes, were exhibietd in the model of the Sado mine which is in the Society's Museum at Yokohama.

Mr. Syle questioned whether the low rate of wages mentioned in the paper—from 2½ to 4 sen a day—could include the labourer's food; but Mr. Dallas supposed it might do so, because, in that region, workmen might be hired at 10 sen per diem; and only 5 rios a month were paid for school-teachers. In reply to Mr. Knipping he also stated that the native maps found in those parts, though not drawn to scale, were good and useful.

Dr. Murray remarked on the excellence of maps he had seen in and about Kiôto; and on the ingenious method employed of giving the heights of mountains by projecting an elevation of them in their site on the map.

As to the longitude marked on such maps, some gave it from Yedo and some from Kiôto.

The thanks of the Society were returned to Mr. Gubbins for his paper, and to Mr. Plunkett for his kindness in reading it; and the Secretary was instructed to convey to the authorities of the College the Society's best acknowledgments for the courteous manner in which the use of the room where the meeting was held had been tendered.

The meeting then separated.

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NOTES COLLECTED IN THE OKITAMA KEN, WITH AN ITINERARY OF THE ROAD LEADING TO IT.

By Charles H. Dallas, Esq.

[*Read before the Asiatic Society of Japan on the 31st May, 1875.*]

[103] The Okitama Ken, better known by the name of its chief town Yonezawa, is situated in the mountainous country due north of Tôkiô at a distance by road of 84 *ri*. A list of the stations and their distances will be found at the end of this paper. The principal road to it follows the Ôshiu kaidô as far as the important town of Fukushima. It is this town of Fukushima, 72 *ri* from Tôkiô, that was fixed upon as the provisional terminus of the railway that certain *kuwazoku* wished to construct to Awomori. As this scheme, though postponed, is probably not definitely abandoned, an itinerary of the Ôshiu kaikô as far as Fukushima may have some claim to interest at the present moment; but before going over it in detail, it may be convenient to sketch briefly the physical geography of the country through which it passes.

The principal chain of mountains comes down from Awomori in nearly a straight line to a point about 30 *ri* north of Tôkiô, and then turning towards the west, and keeping that distance as radius and with Tôkiô for a centre, describes a circular arc to Fuji-san. This chain is the watershed of the country and throws out a series of spurs which serve as guides to the various rivers. On the [104] way to Fukushima one finds four principal channels. From the corner made by the turn of the mountain chain comes towards the east a ridge of inconsiderable height which forms the northern boundary of the plain in which Tôkiô is situated. On its crest, if it deserves the name, is the town of

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Utsunomiya, 28 *ri* from Tôkiô. The Ôshiu kaidô traverses the plain as far as Utsunomiya, and then continues towards the north, parallel to and at a short distance from the eastern base of the principal chain of mountains.

The country between Tôkiô and Utsunomiya is drained principally by the Sumita gawa and the Tone gawa; by the former and one branch of the latter into the Bay of Yedo, and by its remaining branch into the Pacific.

Only 8 *ri* beyond Utsunomiya is the Kinu gawa, which, pent up for many miles inside the principal range of mountains, breaks through them at the turn, and though checked by the ridge already mentioned, soon rounds it and continues a southerly course for some miles further before uniting with Tone gawa and striking east to the Pacific, which is reached at Chôshi. In the latter part of its course it receives several affluents.

Proceeding towards the north the next eastern spur shutting in the Kinu gawa is only five *ri* further. The hill, between the towns of Ujiye and Kitsuregawa, by which the Ôshiu kaido climbs over it, is called Yagorô Saka. Past Kitsuregawa flows a river of the same name almost due east to the Pacific. It unites with four streams, that separated each by a short spur of hills come from the central mountains, to form the Naka gawa, which thus carries off all the water between Yagorô Saka and the mass of hills called Ni-ju-san Saka between Koyebori and Ashino.

North of these twenty-three hills and taking its rise in the mountains at the south of Aidzu is the Abukuma gawa, which crosses the Ôshiu kaidô at the large castle-town of Shirakawa, 50 *ri* from Tôkiô, and then turning towards the north only reaches the Pacific at Arahama in the Bay of Sendai. In its northern course its principal [105] affluents are the Shakado gawa, the Nami gawa and the Su kawa, all of which cross the Ôshiu kaidô in their eastward descent from the central mountains. They are separated from one another by abrupt and precipitous hills, over which the Ôshiu kaidô toils laboriously, apparently scorning to go round them. It is in the corner made by the junction of the Su kawa and Abukuma gawa that Fukushima is situated.

Taking now the western side of the central range, it will be suf-

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ficient to say that at the southern extremity of the straight line the turn seems to produce an enormous knot, in the southern portion of which lie ensconced the far-famed temples of Nikkô. Travelling northward through this knot and mounting to its source the bed of the Kinu gawa, one arrives at the water-shed whence rise the rivers flowing towards Niigata; and descending towards the north, the first level land reached after 30 *ri* of mountain climbing is the plain of Wakamatsu or Aidzu, with its lake and outlet to the west.

North of this plain there comes from the principal chain a spur, or rather cross-chain, which starting from between the great mountains of Adzuma and Bandai-san, just opposite to Fukushima, extend first westerly and then scatters towards the north-west. A few *ri* further one branch nearly unites with the main line, thus inclosing the Okitama Ken, and then again diverges to the west to give space to the magnificent plain of Yamagata, which is the northern limit of my own travels. This western cross chain is of great breadth, the road from Yonezawa to Niigata being known as the Ju-san Tôge. Certainly of the thirteen, three are only small hills, but four or five are formidable passes.

Having said thus much on the nature of the country, let us follow the Ôshiu kaidô, which leaving Tôkiô by the suburbs of Senji, stretches to the north till it reaches the banks of the Tone gawa at a small station town called Kurihashi, distant 14½ *ri* from the Nihon Bashi. All along this part of the road the villages and station towns succeed each other at such short intervals as almost to [106] make a continuous line; none, however, appear to be of any special importance, Kasukabe, 10 *ri* from Tôkiô, being the principal. The plain is fertile and carefully cultivated, producing rice, wheat, barley and vegetables; a few miles beyond Senji, however, is a little grass land that seems to be waste. The black alder and the weeping willow are common trees, and wood-pigeons are to be seen in great numbers.

Approaching Kurihashi along a causeway or bund built to confine the river, one has a magnificent view of the Nikkô mountains. The Tone gawa is crossed by a ferry, and when full is 600 yards across. When the water is low the channel is on the Kurihashi side, leaving the northern half of the bed exposed. In July, 1872, in swimming across it

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from the northern side when it was at its highest, I found three feet of water on the shallowest part in the centre, while the stream was dashing down the deep channel with a swiftness that was almost dangerous.

Crossing the ferry one finds on the northern bank the town of Nakata, and from here the character of the road changes. An almost continuous avenue of cryptomeria shades it all the way to Utsunomiya. The ground is higher and gradually rises. One sees little rice, but plenty of wheat, barley and vegetables, with large tracts of grass-land that would apparently furnish excellent pasturage. A short distance from Nakata is the castle-town of Koga, which seems a busy place. The *shiro* was of great extent, but the work of destruction has been done so thoroughly, that the neglected moats, crossed by bridges dangerously rotten, only shut in a wilderness of rank grass that has obliterated all traces of the daimio's mansion.

The road all the way from Tôkiô to Utsunomiya is fairly passable for carriages, and for a short time a public conveyance plied between the latter place and Nakata. There is generally plenty of width, but along the avenues the road is often hemmed in by high banks, which keep in the water, while the stately trees keep out the sun, so that in wet weather and for long afterwards, travelling, [107] whether on foot, on horseback, or on wheels, is disagreeable, difficult and slow.

Utsunomiya is a very large and important town, built on moderately high ground. It was the seat of a daimio of 70,000 *Koku*, whose castle has been turned into barracks. There is an old temple, standing on the edge of an almost perpendicular bluff, which commands a fine view to the north-east. The city seems an important centre of trade; there are numerous *tōbutsuya* well supplied with Bass's beer, or at least beer with Bass's labels, common claret and champagne, kerosene lamps, slop-clothing, slates and stationery.

At Utsunomiya the tourists to Nikkô leave the Ôshiu kaidô, and turning to the north-west reach their destination by a good road of 9 *ri* along superb avenues of cryptomeria. From Imaichi, 2 *ri* before one reaches Nikkô, there is a most exquisitely picturesque but difficult route up the course of the Kinu gawa due north to Wakamatsu and so to Yonezawa, which seems almost as unknown to Japanese as to foreigners.

Following the Ôshiu kaidô, 8 *ri* beyond Utsunomiya is the small

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town of Shirasawa, where one crosses the Kinu gawa. The river divides 8 *ri* above the town, and reunites its branches 1 *ri* below it, thus inclosing a long narrow sandy island thickly covered with small trees and brushwood. On the left or farther bank of the northern branch is the town of Akutsu, 1 *ri* from Shirasawa.

Akutsu is not a regular station-town, and the traveller from the south passes through it without stopping; but it is an important forwarding place for travellers and goods coming to Tôkiô from the north, as there is communication by flat-bottomed boats down the Kinu gawa, 13 *ri* to a small village called Kubota; whence 7 *ri* of level ground lead to Sakai, a town on the Tone gawa, by which boats drop down the stream to Tôkiô in about sixteen hours. All the goods traffic and nearly all the passengers go by this route. There is an *Ura-kaidô* from the Aidzu [108] country by which produce reaches Akutsu, but it is reported to be impassable for travellers.

From Akutsu after crossing one small hill, a level road bordered by rice fields leads through Ujiye to the foot of Yagorô Saka, known to the jinrikisha coolies as the worst hill this side of Sendai. On the other side of the hill is the castle-town of Kitsuregawa, with its river famous for eels and a fish called *ayu*, which is esteemed a great delicacy. The town has the historical interest of having been the seat of the Ashikaga family.

From Kitsuregawa to Sakuyama is a hilly road over high wild gorse-covered moorland, with occasional plantations of young beeches.

From Sakuyama to Ôtawara the road is level through several villages with gardens and rice-fields. A handsome avenue leads into Ôtawara, from whence there is a cross-road to Imaichi, distant about 18 *ri* to the south-west.

Ôtawara was the seat of a daimiô of 80,000 *koku*, but was burnt in the war and has never been wholly rebuilt. The *honjin*, however, is one of the best on the road. The town is chiefly remarkable for the immense number of pack-horses always standing in the streets, which would seem to point out some special activity of trade, but I am told that it possesses no particular *meibutsu*.

The northern gate of Ôtawara is washed by a small river, from which a level country extends to the Nasu kawa, on the south bank of

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which is Nabekake, a large town now almost entirely destroyed by fire. The banks of the Nasu kawa are perpendicular cliffs, with the upper edges most picturesquely wooded. On the north bank, exactly opposite to Nabekake, is the station town of Koyebori.

Between Koyebori and Ashino are the *Ni-ju-san saka*, twenty-three hills of corduroy roads. In very clear weather Fuji-san may be seen from the top of the second hill, which is therefore known as *Fuji-mi saka*.

Ashino is in a long valley surrounded by wooded hills, over which more corduroy roads lead to Shirasaka. Between [109] Ashino and Shirasaka is the boundary separating the provinces of Shimotsuke and Ôshiu.

More hills, and a long stretch of magnificent moorland bring the traveller to Shirakawa, a fine large castle-town with an air of prosperity about it, such as one sees at Utsunomiya, Sukagawa, Koriyama, Nihon Matsu and Fukushima. The *honjin* has been converted into a hospital, and a conspicuous object in the principal street is the telegraph office. In the castle is a small temple dedicated to Jimmu Tennô. Shirakawa was the seat of a daimiô of 110,000 *koku*, and played a prominent part in the civil war. It was occupied by each of the contending parties, and appears to have been exceedingly lucky in having only slightly suffered from fire. Leaving the town one crosses the Abukuma gawa, and a short distance beyond, on a hillside sloping to the road, is a burial-ground of the southern men who fell in the war. The tombstones and inscriptions are kept in good order, and many a traveller alights from pack-horse, *kago* or *jinrikisha* to pause and pay a tribute of respect to the memory of the gallant dead. Round this same hill winds to the left the road to Wakamatsu.

Between Shirakawa and Yabuki the country is mostly moorland. Yabuki was a large town totally burnt in the war and only partially rebuilt. From here to Sukagawa the road is very beautiful, through woods and over undulating grass land.

Sukagawa, on the banks of the Shakado gawa, is one of the richest and best kept towns on the road. After the conversion of *han* into *ken* it became the seat of the Shitchojo or branch agency of the Fukushima ken, but this has recently been abolished. It has a hospital built in

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foreign style, attended by Japanese doctors who have studied in Tôkiô. Numbers of mulberry trees are to be seen in the neighbourhood, and the practice is adopted here of cutting the trunk short off just above the ground and keeping the shoots tightly tied together. The stage to Koriyama is the longest on the journey, 8 *ri* 9 *chô*. There are three or four villages, and one stone quarry on [110] the way. The last *ri* or so leading into Koriyama is over a carefully made wide road, the first piece of real carriage road that one sees after leaving Tôkiô.

Koriyama is a large flourishing place, and its townsmen have the reputation of being wealthy. In the outskirts some branch of silk manufacture is actively carried on in almost every house.

Between Motomiya and Nihon Matsu are some valleys of rice-land separated by hills crossed by a horrible corduroy road. The lofty mountain of Daki rears its double peak from the range on the left.

Nihon Matsu is a large town extending up and down the sides of an exceedingly steep hill. It was a castle town, the seat of a daimiô of 110,000 *koku*. It is the chief town of the Shinobu Kôri, one of the principal silk producing districts of Ôshiu, and has a silk-reeling factory with machinery copied in wood from that used at Tomioka, and worked by water-power. It is also noted for a kind of sweetmeat called *yôkan*.

From Nihon Matsu through Hatchônome to Fukushima is all up and down terrible hills. At the end of February this year there was a foot of snow on the road nearly the whole way. A short distance before reaching Fukushima one emerges from a muddy village on to an excellent piece of road which leads to a causeway forming the approach to a magnificent bridge over the Su kawa, said to be 250 yards in length.

Fukushima is the chief town of the Ken to which it gives its name, and was the seat of a daimiô of 70,000 *koku*. The *shiro* has been dismantled, but the moats and banks are kept in good order. Fukushima is a great centre of the Silk trade, and is the headquarters during the season of the Tôkiô silk buyers. Yanagawa in the Date Kôri and Nihon Matsu are the two chief silk producing places in the Ken, which is also noted for the excellence of its dried *kaki* (persimmons). The town is well lighted with kerosene lamps, and has a telegraph office. The Ken authorities are paying attention to the great want of Japan, the making of roads. In conjunction [111] with the Yamagata Ken a waggon road is

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being constructed to connect the two places, and a large portion in the latter Ken is already completed. A proposition was made to the Okitama Ken to make a road between Yonezawa and Fukushima, the Fukushima people offering to pay 50,000 Yen, if the Yonezawa people would pay the same sum; but the latter do not like parting with their money. There is some talk of all that portion of the Ôshiu kaidô which is in the Fukushima Ken being put into proper repair; but it seems doubtful whether it would not be better to abandon it and make a new road; for as the Abukuma gawa finds it way from Shirakawa to Fukushima, it is reasonable to suppose that it would be possible by following its course to make a nearly level road, instead of as now crossing all the spurs that strike out from the grand central range. Some portions of the upper waters of the Abukuma gawa are navigable for small boats, but near Nihon Matsu there are dangerous rapids. From Fukushima there is a good deal of traffic by it to Arakawa on the Bay of Sendai, 13 *ri* from the sea port of Ishibashi on the opposite side of the Bay.

In all the towns here named is to be found excellent accommodation for travellers and exceedingly cheap, except indeed at some places south of Utsunomiya, where the innkeepers have learnt to demand a special rate for foreigners. The charge for supper, bath, bed and breakfast is three-quarters of a *bu* in the very best hotels. In villages it is even less; at Kubota, on the Kinugawa, there was a notice posted up announcing that, in consequence of the high price of provisions the innkeepers had made an agreement to fix the price of first-class accommodation at 15 *sen*!

As a means of communication the Ôshiu kaidô is not to be commended, the portion north of the Kinu gawa being in such bad order as to be only not absolutely impassable for carriages; but one must not leave it without saying something of the scenery through which it passes. The blue mountains, along which one travels for days, [112] yet seeming always to see the same, are somewhat monotonous, yet with the distant hills in the east, the wood, the water and the undulating ground, combine to form a picture or rather a panorama, which is nearly always beautiful and possesses exquisite 'bits.'

Still this is not the route to be chosen by the lover of scenery. To the road or rather track from Imaichi to Wakamatsu must be accorded

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the palm in this respect. The bold mountains, wooded from the peak to the torrent at their base, with almost tropical exuberance of foliage, trees growing out of a few inches of earth, plants seemingly springing from the very boulders, the dashing water and the varied tints give a fresh picture every mile, and every picture a gem.

From Fukushima the traveller to Yonezawa turns off to the north-west to cross the central range by the pass of Itaya over a ridge of the Adzuma mountain. The pass is about 2,500 feet above the sea. The first 2½ *ri* are over level roads to a village called Niwasaka, and from there the climbing commences. First up a mountain 1,500 feet above Niwasaka to the village of Sumomo-daira, then down again to the borders of a torrent at the point where it divides into two streams, that almost encircle the mountain and flow out past Fukushima; then up an ascent densely wooded, and down again to the same torrent immediately under Itaya. The climbing so far is all unnecessary; it would be easy to trace a level road, that with all its windings would not measure more than the present one; and it would be easier still to establish water communication. The banks of the gorge, at the bottom of which the stream passes, rise perpendicularly to a considerable height before commencing to slope upwards to the mountain-tops, so that there would be no difficulty in throwing a dam across a narrow part of each stream just before its issue to the plain, and raising the water, of which there is abundance, to any desired height between the stone walls that nature has provided for it. Crossing this torrent, a zigzag ascent leads to the village of Itaya, enclosed by a thick belt of pine trees. Grassy slopes [113] bring one to the summit of the pass, from which there is a rapid descent through a picturesque glen to Ôsawa, 3½ *ri* from the town of Yonezawa. The whole distance from Fukushima is 12 *ri*, the 6 *ri* in the centre being difficult climbing. The road is an excellent specimen of military engineering in the olden time,—it succeeds in rendering travelling as difficult as may be without making it absolutely impossible.

The plain of Yonezawa, about 12 *ri* long and varying in breadth from 5 to 17 *ri*, is perfectly flat, and the lofty mountains by which it is hemmed in appear in the distance to rise perpendicularly from its sides. From the centre of the plain no break whatever is visible through this

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mountain wall, but on the north a tortuous gorge with only a moderate ascent communicates with the plain of Yamagata, and on the north-west is the outlet of the Matsu kawa, a large river that rises from Adzuma yama in the south-east, flows past the town, traverses the whole extent of the plain, forces its way though the mountains and eventually reaches the Sea of Sakata. Just before leaving the plain it becomes navigable for small boats, but the upper part is too shallow and irregular. No attempt is made to guide or confine the water; and nearly every year the floods carry away all the bridges. The chief summits of the surrounding mountains are Adzuma, Kabuto yama, so called from its resemblance to a helmet, Iide san, and Asahi yama. The famous mountain Gas-san in Mogami may be seen in very clear weather breaking through the northern horizon. It is stated that the snow never quite disappears from Iide san, and the phrase "*Iide san no yuki wa kiyetara*" is used as the local equivalent for the Greek Kalends.

The plain thus enclosed does not all belong to the Okitama Ken; a portion called Yashiro Go on the right band of the Matsu kawa was taken from the late daimiô after the war, and is now included in the Yamagata Ken. The whole plain forms the Okitama Kôri, the southern division of Uzen, and is about midway between the Pacific and the Sea of Japan, the town of Yonezawa being [114] 36 *ri* from Niigata, and 82 *ri* from Sendai. Just 19 *ri* to the south is the famous town of Wakamatsu, and 12½ *ri* to the north is Yamagata.

Yonezawa itself is a large town of not very prepossessing appearance situated near the south-eastern extremity of the plain. The houses are all thatched, and have no verandahs. The streets are narrow, rough, unpaved and altogether uncared for. Water from the numerous mountain-streams is led along the centre of almost every street in open conduits, which, with the addition of two or three wells, supply the people with water for all purposes. The late governor put up kerosene lamps but the people demolished them, as they considered the lighting of the streets an unnecessary expense. The *shiro* is immense, and as all the houses within its ramparts have large gardens separated by hedges, it presents the appearance of an enormous village. There is no attempt at fortification except the usual three moats. The inner one inclosed the mansion of the daimiô and a temple sacred to the memory of Uye-

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sugi Kenshin, his ancestor,—a mighty warrior of the 16th century. The mansion has been razed to the ground, but the temple remains, and a great festival is held on the date corresponding with the 18th day of the 3rd month of the old calendar. The streets or roads in the *shiro* were formerly very broad, but three years ago the then governor allowed the residents to take in a quarter, and in some instances a third, on each side. This was after the conversion of *Han* into *Ken*, and was intended as some sort of alleviation to the *kerai* in their distressed circumstances. Some idea of the severity with which the changes pressed on the upper classes may be gathered from the fact that the principal retainers, especially those few families from whom the Karô was selected, have pulled down their old mansions in order to grow rice on their sites, and are now living in the out-buildings of their *yashiki*. One family whose revenue was 1,600 *koku* now receives a pittance of 40 bags—about 18 *koku*. The upper class of *samurai* did not draw an allowance of rice from the daimiô's treasury, but received it direct from the [115] farmers as rent of the land. As this right, though ostensibly the salary of a sinecure office, was handed down from father to son, the *samurai* were virtually owners of their land, and the manner in which they acquiesced in the surrender of their revenues to the central government reflects the highest honour on their patriotism. It has been the fashion with many foreigners to bestow a great deal of commiseration on the farmers or, as they may be more accurately styled, farm-labourers. It is probably true that the government does exact from them a higher rent than that with which the former owners were satisfied, but the change of ownership does not affect them to any perceptible fraction of the extent to which it affects their betters. In an old and thickly populated country unskilled labour at a healthy occupation cannot be expected to earn more than will provide the rude necessaries of life, and these the field labourers certainly possess, if the healthy sturdy appearance of themselves and their children may be taken as a criterion.

The climate presents a striking example of the modifications produced by the physical conformation of the country. In winter, although snow to the depth of five or six feet lies on the ground from early in December till late in March, yet owing to the protection afforded by the surrounding

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mountains, the cold is not by any means so trying as that experienced at Tôkiô during the prevalence of the northerly winds. The heat in summer is about equal to that of Tôkiô.

There are several hot springs in the district, those of Onogawa, Akayu and Go-hiki being the most noted. I believe that they all contain more or less iron and sulphur. I have some bottles of the different waters which I shall be happy to place at the disposal of any gentleman who may desire to analyse them. Their medical properties are held in high estimation, each spring being considered a specific for some particular disease. The waters at Go-hiki are under the special protection of whoever in the Japanese mythology may correspond to the goddess Lucina.

[116] The soil is exceedingly fertile: rice is produced in such quantities as to allow of a large export to the west coast, whence a good deal is said to be forwarded to Hakodate. Wheat, barley and the ordinary potato, carrot and turnip of Europe are grown. Persimmons, grapes, walnuts and chestnuts abound, and last year an attempt was made on a very small scale to make wine. The result was not very successful, but sufficiently so to encourage a repetition of the experiment. Lastly and most important of all, the mulberry flourishes all over the district and attains its highest perfection in the north-west corner, where are the villages of Arato, Miya and Ko-ide, celebrated for their silkworms' eggs. Silkworms' eggs are made throughout the Ken, but those of Shimo-nagai, the northwestern portion, are considered the best.

A table of statistics published last August states that the amount of ground under cultivation exclusive of garden ground is 24,206 *chô*, yielding a total production of 295,671 *koku*, of which 88,564 *koku* or rather less than one-third are paid into the Ken treasury. The value of this is set down at 195,293 *yen*, so that roughly speaking there are 60,000 acres of cultivated ground paying for rent and taxes an average amount of 13 shillings per acre. The money value of the land is estimated at 2,786,238 *yen*, equivalent to 384 *mon* per *tsubo* or £9.5 per acre. The house and garden ground measures 1,498,787 *tsubo* or about one forty-eighth of the farm land. Its value is estimated at 159,010 *yen*, equivalent to 1060 *mon* per *tsubo*. The amount levied on it is only at the rate of about one-third of that on the farm land, though its value is estimated at nearly three times that of the latter.

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The population belonging to the Ken numbers 159,716, divided as follows:

	Males.	*Females.*	*Total.*
Shizoku and their families	13,150	13,584	26,834
Priests and their families	742	318	1,060
Nuns	...	12	12
Heimin (plebeians)	67,230	64,680	131,910
	81,122	78,594	159,716

[117] Of this number 528 persons have emigrated to other districts, and 975 others have immigrated, so that the total number living in the Ken is 160,163. No information is given about age, nor, so far as I am aware, have the statistics of births and deaths been published.

Public instruction is carried on under the supervision of a council of officers chosen by the governor. There is one middle school with an English and a Chinese department, and 212 lower schools with 217 teachers attended by 8,950 boys and 642 girls.

The annual revenue of the Ken amounts to 236,027 *yen*, derived from the following sources:—

	Koku.	*Yen.*
Arable land—in kind	88,564.227	=195,293.162
Arable land belonging to private proprietors,—in kind	3.682	= 8.157
Arable land belonging to private proprietors,—in money	—	553.859
Surcharge to meet sundry particular expenses in kind	3,454.047	7,616.877
House and Garden land—in money	—	1,590.103
Sundry taxes	—	28,125.110
		233,187.268
Licenses for local purposes		2,840.274
Grand Total		*Yen* 236,027.542

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The expenditure is not given in detail: the total amount is set down at 34,255 *koku* of rice and 31,563 *yen* in money. Besides this there is the Government grant of 29,238 *yen* distributed as follows:—

Salaries of officials	*yen*	19,068
Sundry current expenses	"	2,050
Reserve-fund	"	5,850
Police	"	2,030
[118] Two Superintendents of Silk and Silkworm's eggs	"	240
	yen	29,238

The officials number 69; one of the 5th class, one of the 7th, 48 from the 8th to the 15th, and 19 below the 15th.

Statistics of the produce of the Ken are given under no less than 75 heads, of which I can here only cite some of the more important figures. The number of young mulberry trees is a million and a half. The quantity of leaf 69,046,668 lbs. The weight of Cocoons 1,800,000 lbs. Of Silk 88,176 lbs. Of Pierced Cocoons 231,400 lbs. The Silkworms eggs numbered 199,981 Cards; last year there were upwards of 230,000.

Of Silk piece goods there were manufactured 14,000 double pieces (*hiki*), the length of the single piece (*tan*) being 28½ feet.

Of Lacquer gum there was collected 3,608 lbs. and of lacquer ware there was made 110 horse-loads (one horse-load is 40 *kwamme*=333⅓ lbs). The lacquer ware is all made for the Yokohama market.

The Ken produces 346,775 lbs. of Tobacco, chiefly exported to Echigo, its flavour being stronger than is liked in Tôkiô.

Saké is an important article of export; 13,751 *koku* are brewed, most of which is sent to Sakata.

The mountain sides are well wooded; the quantity of timber felled is given at 46,880 loads of Cedar and 16,489 loads of Pine.

Pen-making is one of the industries of the district. The number manufactured is returned as 3,102,500 pairs. Of candles there were made 62,598 lbs. and of pomatum 180,670 lbs. Indigo was produced to the extent of 188,808 lbs. and the flax crop yielded 579,891 lbs.

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The prices quoted in the table of statistics sufficiently illustrate the difficulty of communication. In the outlying valley of Oguni the value of best rice is stated to [119] be *yen* 1.88 per koku, while at Yonezawa, distant only 10 *ri*, it is *yen* 2.24. In the carrying traffic over the mountains, bulls are used instead of pack-horses. The cheapest communication is in winter, when the snow allows the passage of little *sleds* drawn by men.

In conclusion I must apolozize for the crude form in which, fearing to trespass too much on the time of the meeting, I have presented these statistics.

ITINERARY OF THE ÔSHIU KAIDÔ.

FROM THE NIHON BASHI.

	Ri.	*Chô.*	*Ken.*	*Feet.*	*Ri.*	*Chô.*	*Ken.*	*Feet.*
Senji	2	4	7	0	2	4	7	0
Sôka	2	17	53	3	4	22	0	3
Koshigaye	1	33	30	3	6	19	31	0
Kasukabe	2	21	28	4	9	4	59	4
Sugido	1	29	42	3	10	34	42	1
Satte	1	18	36	3	12	17	18	4
Kurihashi	2	3	21	1	14	20	39	5
Nakata	0	5	49	1	14	26	29	0
Koga	1	21	33	4	16	12	2	4
Nogi	0	31	28	0	17	7	30	4
Mamada	1	31	48	5	19	3	19	3
Oyama	1	19	13	0	20	22	32	3
Hagawa	1	18	23	3	22	4	56	0
Koganei	0	28	21	2	22	33	17	2
Ishibashi	1	20	39	0	24	17	56	2
Sudzuminomiya	1	24	9	0	26	6	5	2
Utsunomiya	2	6	1	5	28	12	7	1
Shirasawa	2	25	0	4	31	1	7	5
Akutsu	0	29	5	0	31	30	12	5
Ujiye	0	29	58	4	32	24	11	3
Kitsuregawa	1	33	42	2	34	21	53	5
Sakuyama	2	32	58	5	37	18	52	4
Ôtawara	1	28	6	5	39	10	59	3

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	Ri.	*Chô.*	*Ken.*	*Feet.*	*Ri.*	*Chô.*	*Ken.*	*Feet.*
Nabekake	3	2	25	2	42	13	24	5
Koyebori	0	10	11	5	42	23	36	4
Ashino	2	5	45	0	44	29	21	4
Shirasaka	3	0	15	1	47	29	36	5
Shirakawa	1	35	55	0	49	29	31	5
Kotagawa	1	22	38	4	51	16	10	3
Yabuki	2	0	26	1	53	16	36	4
Kasaishi	1	2	44	0	54	19	20	4
Sukagawa	1	15	53	0	55	35	13	4
Koriyama	3	9	8	5	59	8	22	3
Takakura	2	17	16	0	61	25	38	3
Motomiya	1	6	56	5	62	32	35	2
Ni-hon-matsu	2	23	33	3	65	20	8	5
Hachonome	2	8	17	1	67	28	26	0
Shimidzu-machi	1	17	23	3	69	9	49	3
Fukushima	1	23	5	3	70	32	55	0
Niwasaka	2	13	9	5				
Sumomodaira	2	3	42	0				
Itaya	1	24	49	0				
Ôsawa	2	15	16	5				
Yonezawa	3	13	32	2	82	31	25	0

N.B.—6 feet=1 *ken*, 60 *ken*=1 *chô*, 36 *chô*=1 *ri*, 1 *ri*=4,320 yards or $2\frac{5}{11}$ of an English mile.

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ASIATIC SOCIETY OF JAPAN.

[120] The regular May meeting of the Society was held on Monday, the 31st ult., at 8.30 P.M. at the Grand Hotel, Dr. Brown in the Chair.

The Minutes of the last meeting were approved, and it was announced that the following gentlemen had been elected Ordinary Members of the Society since the last General Meeting: Rev. C. F. Warren, Messrs. A. J. Van Casteel, G. J. Rockwell and John Farmer.

The following donations had also been received:—A Comparative Vocabulary of the Chinese, Corean and Japanese Languages, Proceedings of the American Oriental Society and of the American Philological Association, etc.

Mr. Dallas then read his paper entitled "Notes collected in the Okitama *ken*, with an itinerary of the roads leading to it."

On its conclusion Dr. Brown said:—In Japan we have no Nineveh or Babylon to disentomb, no Jerusalem to uncover of its superincumbent débris, in order to identify its ancient topography, no Ilium that was, to bring to light, after the oblivion of ages, nor ancient ruins of any kind whatever to interest the antiquary. The materials of which all structures have been built in this country have been so perishable that we have but to scratch the surface of the soil, or penetrate a few inches, or at most a few feet below it to lay bare all the structural antiquities it contains. Hence the antiquarian who confines his researches to this country is in danger of being disappointed, not because the country is not old enough, but because it is so old that its perishable monuments have crumbled to dust. All are turned to mould. The Asiatic Society is therefore indebted to those who, despite the want of such monuments as might furnish them with themes for papers to contribute to our Transactions, are willing to put themselves to the trouble of giving us the results of their careful observations upon things that lie, as it were, upon the surface. These things are not seen without travel, nor understood without inquiry, nor is every one who does see them ready to take such note of them as is requisite to furnish the basis of valuable communications to the public. Even itineraries, in the present exclusion of foreigners from the interior of the country, are valuable, and especially carefully prepared statistics like those contained in Mr. Dallas's paper on the Okitama Ken. I have much pleasure in saying that the Asiatic Society are under obligations to him for this contribution to their information respecting a part of the country to which few of us have had access.

After some further conversation on the subject of the paper the meeting terminated.

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AN ANCIENT JAPANESE CLASSIC.

(THE "TOSA NIKKI," OR TOSA DIARY.)

By W. G. Aston, Esq.

[*Read before the Asiatic Society of Japan, in Tôkiô, on the 30th June, 1875.*]

[121] The ancient literature of Japan contains few works of a popular character. Almost without exception, everything which has come down to us from the period when the Japanese language was in its greatest purity and perfection was written by and for a learned circle composed chiefly of the Household of the Mikado and the officials of his government.

The *Tosa Nikki* is not an exception to this rule. The author was a Court noble named Tsurayuki, who traced his descent in a direct line from one of the Mikados, and whose history is little more than the record of the successive offices he held at Kiôto, and in the provinces. One of his appointments was to the prefecture of Tosa, and it was on his journey back to Kiôto, after having completed the four years which were then the fixed term for such offices, that he wrote the Diary which is the subject of the present paper. Tsurayuki is also known as a poet of considerable eminence, and as the author of the famous preface to the Kokinshiu, extolled by Japanese critics as the most perfect specimen of composition extant in the native style.

[122] The first entry in the Diary bears date the 21st day of the 12th month, and we learn from other sources that the year was the

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fourth year of Shohei. This would be, according to the European reckoning, some time in the months of January or February A.D. 935, or now 940 years ago.

Tsurayuki begins by telling his readers that diaries being commonly written by men, this is an attempt to write a woman's diary. Hence he always speaks of himself in the third person, under the vague designation of 'a certain man.' But in Tsurayuki's day something more than this was implied by the phrase 'a woman's diary.' The learned were at this time devoted to the study of Chinese, and rarely composed in any other language, whilst the cultivation of the Japanese language was in a great measure abandoned to women. It is honorable to the women of Japan that they nobly discharged the task which devolved upon them of maintaining the credit of their native literature. I believe no parallel is to be found in the history of European letters to the remarkable fact that a very large proportion of the best writings of the best age of Japanese literature was the work of women. The *Genji Monogatari*, the acknowledged standard of the language for the period to which it belongs, and the parent of the Japanese novel, was written by a woman, as were also the *Ise Monogatari*, the *Makura Zôshi*, and much of the poetry of the time. There is even reason to suppose that the traditions collected in the *Kojiki*, the Bible of the Shintô religion, were taken down from the mouth of a woman. With the exception of the last-mentioned work, which was committed to writing before the invention of *kana*, the Chinese character was very sparingly used in books written by women, and the use of Chinese vocables was also extremely limited. It is evident, therefore, that when Tsurayuki spoke of writing a 'woman's diary' he meant a diary composed in the style usually employed by the women of that period.

The first day's entry also records Tsurayuki's departure [123] from the Government House of Tosa, and his arrival at the port from which he was to set sail. He was accompanied here by large numbers of people who came to take leave of him. Most brought with them parting presents, usually of eatables or *saké*. The result was that in Tsurayuki's words, "Strange to say, here we were all fresh by the shore of the salt sea." He did not actually set sail till the 27th, the intervening six days being chiefly taken up in disposing of the presents, and in a visit to the newly appointed Prefect, with whom he spent a day and

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night in drinking and verse-making, after which he took a final leave. Tsurayuki's successor in office shook hands with him at the bottom of the steps leading up to the house, and they bade each other farewell with many cordial, but tipsy expressions of good-will on both sides. On the following day, however, we find Tsurayuki in a different frame of mind. He tells us that during his stay in Tosa a girl had died who was born in Kiôto, and that amid all the bustle and confusion of leaving port, her friends could think of nothing but her. Some one, he says, composed this verse of poetry on the occasion:—

"With the joyful thought, 'Home to Kiôto,' there mingles the bitter reflection that there is one who never will return." We are informed by another writer that Tsurayuki here deplores the loss of his own daughter, a little girl of nine years of age.

But the jollifications had not yet come to an end. The new Prefect's brother made his appearance at a projecting cape on their way to the first stopping-place, and they were accordingly obliged to land on the beach, where there was more drinking and composing of verse. Of these verses Tsurayuki seems to have had no great opinion. He says that it required the united efforts of two of the party to make one bad verse, and he compares them to two fishermen labouring along with a heavy net on their shoulders. Their jollity was interrupted by the master of the junk, who summoned them on board. There was a fair wind, he said, and the tide served; and Tsurayuki maliciously adds that [124] there was no more *saké* to drink. They accordingly embarked, and proceeded on their voyage.

On the 29th they had got no further than Ominato, a harbour only a few miles distant from their starting-point. Here they were detained for ten days waiting for a fair wind. Presents of eatables and drinkables still came in, but more sparingly, and Tsurayuki records regretfully the fate of a bottle of *saké*, which he had stuck in the roof of the cabin, but which was displaced by the rolling of the junk and fell overboard. One of these presents was a pheasant, which according to the old Japanese custom was attached to a flowering branch of plum. Some brought verses with their gifts. Here is a specimen:—

"Louder than the clamour of the white surges on your onward path will be the cry of me weeping that I am left behind."

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Tsurayuki remarks that if that were really so, he must have a very loud voice. On the 9th of the second month they at last sailed from Ominato. As they passed Matsubara, they admired a large grove of ancient firs which grew by the sea-shore. Tsurayuki mentions the pleasure with which they watched the storks flying about among their tops, and gives us this verse composed on the occasion:—

"Casting my glance over the sea; on each fir-tree top a stork has his dwelling. They have been comrades for a thousand years."

It became dark before they reached their next stopping-place, for like most Japanese vessels even at the present day, the idea of pursuing their voyage all night long does not seem to have occurred to them. Besides, to judge from its having gone up the Osaka river as far as Yamazaki, their junk must have been a very small one, and the diary shows that it depended more on oars than on sails. Here is Tsurayuki's description of nightfall:—

"Whilst we rowed along gazing on this scene, the mountains and the sea became all dark, the night deepened, and east and west could not be seen, so we entrusted [125] all thought of the weather to the mind of the master of our ship. Even the men who were not accustomed to the sea became very sad, and still more the women, who rested their heads on the bottom of the ship and did nothing but weep. The sailors, however, seemed to think nothing of it, and sung the following boat-song." Tsurayuki gives a few lines of it, and then proceeds. "There was a great deal more of this kind of stuff, but I do not write it down. Listening to the laughter at these verses, our hearts became somewhat calmed in spite of the raging of the sea. It was quite dark when we at length reached our anchorage for the night."

Three more days leisurely travelling brought them to Murotsu, a port just to the west of the eastern of the two horns which the island of Shikoku sends out to the southward. The morning after their arrival here, a slight but constant rain prevented them from starting, and the passengers took the opportunity to go on shore for a bath. In the entry for this day, Tsurayuki mentions a curious superstition. He tells us that since the day on which they first embarked no one wore scarlet or other rich colours or good silks lest they should incur the anger of the sea. The next day the rain continued. It was a Buddhist fast-day,

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and Tsurayuki kept it faithfully till noon, but as suitable food for fast-days was not obtainable on board, he bought with rice (not having any copper cash) a *tai* which one of the sailors had caught the day before. This was the beginning of a trade between him and the sailors, *saké* and rice being exchanged for fish. There was no change in the weather till the 17th, the fifth day from their arrival at Murotsu. On that day they started early in the morning with the moon, then a few days past the full, shining over a waveless sea, which reflected the sky so perfectly, that, as Tsurayuki said, the heaven above and the ocean beneath could not be distinguished. He composed the following stanza on this occasion:—

"What is this that strikes against my oar as the boat [126] is rowed along over the moon of the sea-depths? Is it the bush of the man in the moon?"

The fine weather, however, did not continue. The dark clouds which gathered overhead alarmed the master of the junk, and they put back to Murotsu under a pelting shower, and very miserable. Three more wretched days they were obliged to remain here, endeavouring with indifferent success to while away the time by writing Chinese and Japanese verses, and every morning counting the days that had been already spent on the voyage. On the 21st they again proceeded on their way. A large number of other junks sailed at the same time, a pretty sight which was greatly admired by Tsurayuki. "It was spring," he remarks, "but it seemed as if over the sea the leaves of autumn were being scattered." The weather was now fine, and they entered what we call the Kii Channel. Here they were disturbed by a fresh cause of anxiety. It seems that Tsurayuki during his term of office in Tosa had had occasion to deal rather severely with the pirates of these parts, and it was thought likely that they would now try to have their revenge. One of the commentators attempts to save Tsurayuki's reputation for courage by reminding us that this diary is written in the character of a woman. The course of the narrative, however, shows that their alarm was quite genuine, and indeed, to all appearance, well-grounded. Two days later we find them praying to the *Kami* and *Hotoke* to save them from the pirates. On the following days there were constant alarms, and on the 26th they heard that the pirates were actually in pursuit of

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hem, so they left their anchorage at midnight and put to sea. There was a place on their way where it was usual to make offerings to the God of the Sea. Tsurayuki made the captain offer *nusa*.* They were offered by being cast into the air, and allowing the wind to carry them to the sea. The *nusa* fell in an easterly direction, and the junk's course was turned to the same quarter. To the great joy of [127] all on board, they had now a favorable wind, sail was set, and they made a good day's run. The next two days they were again storm-bound, but on the 29th they proceeded on their voyage. On the 30th they crossed the entrance to the Naruto passage, and the same night, by dint of hard rowing they reached the strait of Izumi. They had now reached the Gokinai, or five provinces round Kiôto, and here there was no longer any fear of priates. The first day of the second month they made little way, and on the second we have the following entry:—"The rain and wind ceased not; a whole day and a whole night we prayed to the *Kami* and *Hotoke*." On the next day the weather was equally bad, and on the fourth the captain would not put to sea from a fear of bad weather, which proved quite groundless. There were a great many beautiful shells on the beach at this place, and Tsurayuki composed these lines in allusion to a shell which is called in Japanese the *wasure-gai* or shell of forgetfulness:—

"I would descend from my ship to gather the shell of forgetfulness of one for whom I am filled with sorrowful longing. Do ye, oh ye advancing surges, drive it forward to the strand."

He afterwards says that the true wish of his heart was not to forget her whom he had lost, but only to give such respite to his sorrow that it might afterwards gain greater strength.

The record of the 5th contains a passage which has some philological interest as giving a specimen of the spoken language at this period. Tsurayuki noticed that a chance order of the captain to his sailors was really a line of poetry of the regular number of 31 syllables. The order was as follows:—

Mifune yori | ohose-tabu nari | asagita no | ide-konu saki ni | tsuna de haya hike.

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* The strips of white paper seen in Shintô Shrines, and also called *Gohei*.

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"Thus it is ordered from the august ship (i. e. by Tsurayuki, the owner): before the morning north-wind comes forth, make haste and haul the ship along with a tow-rope." The only form here which [128] is distinctively colloquial is *de* for *ni te*, while *mifune* and *tabu nari* are now written forms, and would not be used in the spoken language. There are one or two other examples of the colloquial language in the *Tosa Nikki*, and although too few to be decisive, they point to the conclusion that the spoken idiom of the time differed but little from the language employed in literature. A curious colloquial form of the future occurs, ending in *zu*, as in the phrase "*mata makarazu*," 'I will come again.' The same form of the future is still preserved in some of the local dialects.

I translate part of the entry for the 5th, the day before they arrived within the Osaka river. They were now opposite Sumiyoshi:—

"Meanwhile a sudden gale sprung up, and in spite of all our efforts we fell gradually to leeward, and were in great danger of being sent to the bottom. 'This god of Sumiyoshi,' said the Captain, 'is like other gods. What he desires is not any of the fashionable articles of the day. Give him *nusa* as an offering.' The Captain's advice was taken, and *nusa* were offered, but as the wind, instead of ceasing, only blew harder and harder, and the danger from the storm and sea became more and more imminent, the Captain again said:—'Because the august heart of the god is not moved for *nusa*, neither does the august ship move. Offer to him something in which he will take greater pleasure.' In compliance with this advice, I thought what it would be best to offer. 'Of eyes I have a pair—then let me give to the god my mirror, of which I have only one.' The mirror was accordingly flung into the sea, to my very great regret. But no sooner had I done so, than the sea itself became as smooth as a mirror."

The next day they entered the Osaka river. All the passengers, men, women and children, were overjoyed at reaching this point of their voyage, and clasped their foreheads with their hands in ecstasies of delight.

There is no mention of any city or town of Osaka in the Diary, for the simple reason that it did not then exist. Naniwa, which has been used in later times as a [129] poetical synonym for Osaka, is properly the

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river mouth, as its etymology shows, *naniwa* meaning 'dangerous waves.' The bar of the Osaka river had the same evil reputation in ancient times that it has unhappily deserved too well in our own day. Several days were now spent in dragging their vessel laboriously against the strong current of the river. A fast day occurred on their way up it, which Tsurayuki had this time the satisfaction of keeping properly by abstaining entirely from fish. On the 12th, they reached Yamazaki, from which place a carriage (*i.e.* one of the bullock-carts in which *kuge* rode) was sent for to Kiôto, and on the evening of the 16th they left Yamazaki for the capital. Tsurayuki was greatly delighted to recognize the old familiar landmarks as he rode along. He mentions the children's playthings and sweetmeats in the shops as looking exactly as when he went away, and wonders whether he will find as little change in the hearts of his friends. He had purposely left Yamazaki in the evening in order that it might be night when he reached his own dwelling. I translate his account of the state in which he found it:—

"The moon was shining brightly when I reached my house and entered the gate, so that its condition was plainly to be seen. It was decayed and ruined beyond all description—worse even than I had been told. The heart of the man in whose charge I left it was in an equally dilapidated condition. The fence between the two houses had been broken down so that both seemed but one, and he appeared to have fulfilled his charge by looking in through the gaps. And yet I had supplied him by every opportunity with the means of keeping it in repair. To-night, however, I would not allow him to be told this in an angry tone, but in spite of my vexation offered him an acknowledgment for his trouble. There was in one place something like a pond where water had collected in a hollow, by the side of which grew a fir-tree. It had lost half its branches, and looked as if a thousand years had passed during the [180] five or six years of my absence. Younger trees had grown up round it, and the whole place was in a most neglected condition, so that everyone said that it was pitiful to see. Among other sad thoughts that rose spontaneously to my mind was the memory—ah! how sorrowful!—of one who was born in this house, but who did not return here along with me. My fellow-passengers were

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chatting merrily with their children in their arms, but I meanwhile, still unable to contain my grief, privately repeated these lines to one who knew my heart."

I shall not give the verses, but proceed to the last sentence of the diary, which is as follows :—

"I cannot write down all my many regrets and memories; be it for good or for evil, here I will fling away my pen."

The *Tosa Nikki* is a striking example of the truth of Buffon's dictum that "style is everything." It contains no exciting adventures or romantic situations; there are in it no wise maxims or novel information; its only merit is that it describes in simple yet elegant language the ordinary life of a traveller in Japan at the time when it was written. But these qualities have gained it a high rank amongst Japanese classics, and have ensured its being handed down to our own day as a most esteemed model for composition in the native Japanese style.

I may observe in conclusion that the Japanese of the *Tosa Nikki* is on the whole tolerably easy, and it may be recommended as a good book with which to begin the study of the ancient literature of Japan.

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THE LEGACY OF IYEYASU.

By W. E. Grigsby, Esq., B.A.,
Of Balliol College, Oxford, and of the Inner Temple; Professor of Law in the Imperial University of Tôkiô.

[*Read before the Asiatic Society of Japan, at Yedo, on 30th June, 1875.*]

[131] Iyeyasu, deified under the title of Gongen Sama, the founder of the Tokugawa dynasty, left, after a busy life spent first in attaining power and then in consolidating it, the treatise which forms the subject of this essay.[1] The translation used by me is that of Mr. Lowder, published at the beginning of last year. It has seemed to me that a few notes on it, with illustrations from the laws and customs of other nations, might be of some service in determining the place of Japan with respect to Comparative Law. The Legacy of Iyeyasu is the most original monument which Japan has produced in the way of Legislation. Unlike the other Codes before the rise, and after the fall, of the Shogunate, it is purely native in its character, with scarcely any mixture of foreign elements. It contains the leading principles of the system which ruled Japan till a few years since, and it has given to the [132] Japanese institutions, in spite of the debt they owe to China, a stamp peculiarly their own.

The subject seems to divide itself naturally into three parts:—The first is, the condition of society which is represented to us in these

[1] Doubts have been cast on the authenticity of this document by those competent to form a judgment; but as it is conceded that, if not the actual composition of Iyeyasu, it yet embodies his policy, and is of historical value, the question of its authorship is of slight importance; I shall assume it is what it purposes to be.

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pages; the second, its nature and character considered as a code with illustrations from other systems of law; the third, its nature as a manual of suggestions bequeathed by Iyeyasu to his successors. 1. We shall first enquire into the state of society depicted by the Legacy of Iyeyasu.[2] The following remarks are only a commentary and paraphrase on on chapters 42 to 50 in this book. The basis of Japanese life then, as now, was the family. The Japanese family was a corporation, the most characteristic mark of which was its perpetuity. The *Paterfamilias*, head of the family, had a power similar, in nearly all respects, to the *Paterfamilias* at Rome. Like him, the Japanese Father had complete power over the persons and property of his children. He could do as he pleased with both, fettered only by that custom which is the great hindrance to despotism in all early communities. But if his rights were great, his liabilities were great also; he was responsible for all the ill-doings of his family. But the Japanese family was not what we understand by the word. It was often not natural but artificial. That is to say, persons whom we should exclude from the family were admitted into it; and those who would find a place in it were sometimes excluded from it. In other words, adoption on the one hand, and emancipation or the sending away of a son from the family on the other, were in constant practice. Adoption in Japan differed from that in Rome. In Rome adoption was resorted to for the purpose merely of enlarging the family: in Japan it was solely employed to perpetnate the family. A man with no male heir was allowed to adopt a child from another [133] family, who filled there exactly the same position as the natural child would have done. In early times it was the rule that an adopted son must be of the same name as the adopting parent. If the adopting parent had a daughter, the adopted son married her, there being in this respect a difference from the practice in the Rome, where the natural tie of brother and sister was held to be formed and marriage therefore was illegal. In both Rome and Japan, adoption followed the course of nature. Only an adult was allowed to adopt, but in Japan if the head of the family were himself an infant he could adopt. This

[2] Every legal system tells us much of the past life of the nation for which it was framed, since laws are a natural product and not an artificial creation.

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practice was so much resorted to in Japan for two reasons. The earliest and most important was a religious one; adoption prevented the extinguishment of ancestral sacrifices *(sacra gentilicia)* and the consequent disgrace which would have fallen on the family. The second reason will be considered when we speak of feudalism. The second method which rendered the family artificial was the practice of *Kiu-ri or Kan-dô*, the sending away a son from the family, a custom analogous to emancipation in Rome, with this difference, that in Rome emancipation seems to have been bestowed on a favourite son to release him from the bondage of the paternal power, while in Japan a son was only sent away if he were of an irredeemably bad character.

We next come to marriage. Marriage in Japan was not a contract between the parties or a religious institution, but a handing over of the bride to the family of the husband by her own familly. Marriage was allowed, or rather enjoined, in the case of a man at the age of 16, of a woman at 18. A wife passed completely under the control of her husband, both as to her person and property, subject to reference to a council of family relations. So far we have considered the family in its internal aspect. But each family was connected with other families, as in early Rome and Greece, and thus about 50 great clans were formed, of which the four principal were the Gen, To, Hei and Kitsu. All the families of these clans were descended from a common ancestor or claimed to [184] be so. There were certain sacrifices peculiar to each of the families. Certain dignities also were confined to certain families: thus the Shôgunate was the property of the "Gen" family, and we find that the Rulers of the Hôjô family and Nobunaga never assumed the title, though they wielded the power of Shôgun, because they did not belong to the "Gen" clan. In the same way the office of Prime Minister was confined to the "Tô" or Fujiwara family. Up to this point, we find in Japan a condition of society analagous to that formerly existing in Italy and Greece from about 1,000 B. C. to the year 500 of the Christian Era. In both we have family as the unit of civilization. But that which is peculiar to Japan, and that which as such makes the study of Japanese institutions interesting to the student of comparative Law is that, with this primitive form of society remaining unchanged, we find a system which did not arise in Europe till about the 11th century

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A.D., the system of feudalism. Into the causes which gave rise to feudalism in Japan it is not the purpose of this essay to enquire. Suffice it to remind you, that here feudalism, or the holding of land on condition of military service, received perhaps its most elaborate development, as it was unaffected by those causes which modified it in Western Europe—the Church and the Empire. The following seems to have been the condition of society in this respect at the time of Iyeyasu. At the head the Shôgun. Below him about 360 Daimiô, each with a territory of greater or less extent, which he farmed out to his *samurai* or vassals in return for military service; land so held was called *koku*. In the greater daimiates these vassals underlet their lands on the same conditions; in other words, sub-feudation was common. This military service was incumbent on every one who held lands; and so far was this theory carried that a vassal who was not able to perform the service by reason of age or sickness, abdicated in favour of his son. Since lands were only held on condition of military service, if a vassal died and left no male children, the lands escheated [185] to the lord. This naturally extended the practice of adoption, and thus in time it came to be considered that to prevent forfeiture of estate was the only reason for adoption, although doubtless the religious one was always the deepest: even if a man died without leaving any children, natural or adopted, by a legal fiction the property was retained, since his death was concealed till permission was given by the lord for him to adopt a son; and only after this permission was given, his death was announced. Not only escheat, but forfeiture, as in England, was incurred, if the vassal proved faithless to his lord. Each Daimiô lived with his retainers in a walled town; while the other three classes of society, the agriculturists, the artizans, and the merchants, lived outside—the farmer in different parts of the territory, the latter in the *Jôka*, or space immediately below the wall. This is illustrated by the relative position of the patricians and plebians in the early Latin communities, in which the patricians lived on the *arx* or hill, and the plebeians on the low ground beneath it. For instance, the commons in Rome lived in the *Subura* at the foot of the Capitoline Hill.

Again we find in Western Europe the exact contrast to this arrangement; for in it the barons and their retainers lived in the country, and

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the commons in the walled towns, protected by which, commercial interests grew and expanded. Each daimiate was isolated and provided all things necessary for it from within itself, thus realising the idea of independence which the Greek states strove in vain to accomplish. Thus the other three classes were necessarily found in each daimiate, and the members of these clans remained as a rule unchanged. Still there was never a caste system in Japan; there was no religious barrier between each class. The condition of things was the same as in ancient Egypt and was produced by the same instinctive tendency which we find always present in antiquity, to abide in the old ways as much as possible.

2. Such is the condition of society in Japan as pictured to us in the "Legacy of Iyeyasu." Family life formed [136] the basis upon which (as it seems to us incongruously) a superstructure of feudalism had been reared. A code of laws for such a community must necessarily omit much that we at the present time consider to be essential, and lay much stress on what we consider unimportant. But, on the other hand, it bears a striking resemblance to all the early codes, to the laws of Solon and Lycurgus, the 12 Tables; to the Mosaic, and the early Teutonic codes.

From an analysis of the "Legacy of Iyeyasu" the following results have been obtained. The work consists of 100 chapters in no logical sequence. Sixteen chapters consist of moral maxims and reflections, 55 are connected with politics and administrations, 22 refer to legal matters, and in 7 Iyeyasu relates episodes in his own personal history. The Legacy of Iyeyasu then resembles other early codes in the following particulars. First, it makes no sharp distinction between law and morality, between the duties of the citizen and the virtue of the man. The man who obeys the law is virtuous, he who disobeys it is vicious and low. It is the province of the Legislator to inculcate virtue; accordingly sixteen chapters of this short lecture are moral maxims quoted apparently from the sages Confucius and Mencius. Secondly, what is termed Substantive Law is nearly omitted. Since human life within the daimiate was regulated by custom, not by agreement, (there was hardly any intercourse between different daimiates) since the only property of any importance was land, and no will was allowed, all that

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we chiefly understand by law, all that embraces the main bulk of modern law,—the law of contracts, the law of personal property, of will, commercial and maritime law,—find no place in this code. In this respect too, there is an exact parallel between this and other early codes. On the other hand great stress is laid on criminal law, including offences and the different punishments allotted to each, and the law relating to landed property; on the law relating to the status of persons and of classes, to etiquette and ceremonial, to tables of rank and precedence, [137] to political administration and government. In these points, especially the latter, minute details are entered into, and this with a particularity which is striking when compared with the poverty of the code in respect to those matters which seem to us most important in a system of law. A third point of similarity between this and the other ancient codes is, the provision it makes for the exercise of private vengeance, of personal satisfaction for injuries done. As the power of government is comparatively weak, the individual does not (as he does in more advanced societies) give up his right to take satisfaction in his own hands. Thus we find in this code that he whose father or lord has suffered from violence may revenge himself in a prescribed period, on giving suitable notice. We have a parallel to this in the elaborate provisions of the Mosaic code with respect to the avenging of blood. Another point of similarity is the stress this code lays on class distinctions. Society in early stages is unequal, and early codes by reducing these distinctions to writing render them more sharp and distinct. Such expressions as "A girded sword is the living soul of a samurai"—"The *samurai* are the masters of the four classes," must have increased the self-importance of those who read them, and added much to the already overweening pride of the military class in Japan. But there is one great difference between this and all other early codes, viz., its secrecy. It was in express terms forbidden to be promulgated; the perusal of it was only allowed to the "Gorôjiu" or chief councillors of state. This is so unlike all our ideas of Law that it is difficult for us even to imagine a state of things in which people are judged by laws of which they are not only ignorant, but purposely kept in ignorance. The question at once arises, How can people obey laws if they do not know their nature? But we have a parallel in the history of the Aryan

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race previous to the foundation of the codes so often mentioned. We find in Greece and Rome at the beginning of their history that the knowledge of the laws and their administration was confined to the [188] aristocratic class, and that the first struggle of the commons was to force the knowledge from them, a struggle which ended in these codes being reduced to writing and promulgated. Had writing been unknown in Japan at this epoch, the parallel would have been complete; the only difference is, that in the one case the laws were unknown, because not written; in Japan, though written, they were yet to be unknown. The explanation of the matter is to be found in the fact that in early communities custom has absolute sway. The magistrates are, as Iyeyasu says, reflectors of the mode of government; they do in reality what English judges do in theory — interpret, not make, the law. Any additions made to the old customs (as in the case before us) were to reach the multitude, as it were, by filtering down to them through the magistrates, who alone would be conscious that they were new: to the multitude they would only be slight modifications of the customs they had always observed. And indeed regarded as a code of laws, this seems to have been the character of the work before us. Iyeyasu only claims to be a transmitter, not a framer, of the law; his work is rather a compilation, than a creation; a selection from old, not a series of new laws.

8. If then in so far as it is a code of laws the originality of the Legacy of Iyeyasu does not appear, the question then remains in what respects the genius of Iyeyasu has manifested itself? For there can be no doubt that the Shôgunate after his time was a very different thing from that it was before it. The Legacy of Iyeyasu is original in so far as it contains maxims of government in accordance with which the successors of Iyeyasu were to rule. It is this aspect which modern historians have thrown into most prominence,—a circumstance which renders a detailed account of his policy unnecessary here. I shall only mention what I consider the leading principles. The position of the Shôgun to the Mikado was to be one of reverential homage. The Shôguns were in no way to interfere with the Mikado's theoretical [189] supremacy, but to strengthen it in every way. The same respect was to be paid to the relatives of the Mikado and to the old court

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aristocracy. This was contrary to the policy of the former Shôguns, especially of the Ashikaga family, who seem to have treated the Mikado with rudeness or contempt. Secondly, as toward their superiors, so toward their inferiors were the Shôguns to behave with courtesy and consideration. All insult and tyranny was to be avoided; the weight of power was not to press harshly. This maxim is kindred to that one which is the keynote of the Politics of Aristotle, and the neglect of this, as shown in insolence of inferiors, was the rock on which the governments in nearly all ancient communities struck. This caution is perhaps the best proof of the consummate knowledge Iyeyasu had of human nature and of his greatness as a master of statecraft. Another recommendation of Iyeyasu was that the place of government of the lesser Daimiô should be frequently changed. The motive alleged for this was for the prevention of misgovernment; but the real reason undoubtedly was that they might not acquire local influence, and so endanger the power of the Shôguns. This was similar in its purpose, though not in means employed, to the policy adopted by William the Conqueror in portioning out the territories of his barons among several counties. In England, this plan was completely successful; in Japan it failed, because the Shôguns never dared to enforce this measure in the case of the greater daimios, who were the only ones to be dreaded. The best feature of the policy of the Shôgunate was to be the endeavour to maintain peace in the Empire as far as possible. "To assist the people," says Iyeyasu, "is to give peace to the Empire." Japan, harrassed for centuries by intestine feuds, was finally to be at rest under the strong government of the Tokugawa Shôguns; just as to the Roman world, wearied out with constant strife, the establishment of the Empire under Augustus gave for centuries peace. These are the leading principles handed down by Iyeyasu to his successors. Feudalism and [140] the Shôgunate have fallen together; and the policy of Iyeyasu, but a few years since of such importance to the politician, is now of interest to the student of history only.

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ASIATIC SOCIETY OF JAPAN.

A numerously attended meeting of the Asiatic Society was held on Wednesday, 30th June, 1875, at the Imperial College (Kai-sei Gakkô) in Tôkiô. The Revd. S. R. Brown, D. D., President of the Society, occupied the Chair.

A number of Japanese gentlemen were present and appeared to take much interest in the proceedings, and several ladies graced the meeting with their attendance.

The Chairman stated that the first business was to read the minutes of the last meeting; but the Corresponding Secretary explained that the minute book was in the custody of the Recording Secretary who resides in Yokohama, and that the reading of the minutes must be postponed till the next meeting in Yokohama. Mr. Dallas was then requested to act as Recording Secretary for the meeting.

Mr. W. G. Aston then read a paper "On an ancient Japanese Classic," at the conclusion of which the Chairman remarked that the Society was much indebted to Mr. Aston for his paper, as being quite different to anything that had hitherto been laid before this Society. The light thus thrown on the manners and habits of Japanese nearly a thousand years ago was most valuable; but one point that had particularly struck his attention was the touching manner in which the writer of the diary referred to the loss of his daughter, while the dry humour running through so many of his comments shews that he was not a morose nor a melancholy man, but one who could turn even annoyances into pleasantry.

In reply to Mrs. Chaplin-Ayrton, Mr. Aston explained that the Go-hei are the strips of white paper to be seen in all the Shintô temples, and that they are usually taken to be an emblem of purity; but professed himself unable to satisfy Mr. Ayrton as to the meaning of the twist in the strips of paper.

Mr. Syle inquired whether there was any satisfactory evidence that the Go-hei were symbolical in the way mentioned, and also as representing, in their form, the appearance of lightning;—yet further, if there was any play on the word *kami*, as used to mean Deity. If so, then the Japanese had attained to a felicity of symbolism very remarkable, by expressing Purity, Fire and Deity all combined in a simple form.

Mr. Aston remarked that as the Go-hei were originally made of cloth, not paper, he thought it improbable that any emblematic meaning was to be found in the fact that the word for paper, *kami*, is also the word for deity.

Sir Harry Parkes pointed out the value of Mr. Aston's paper [141] as introducing us to a very important unexplored branch of study — the ancient literature of Japan—one that must be studied if the history of Japan and even if the present scheme of administration were to be understood. He begged Mr. Aston to give the meeting some account of this literature.

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Mr. Aston explained the chief characteristics of the old language and literature as compared with those of modern times, and recommended strongly the study of the Japanese ancient classics which, he said, far surpassed in value anything which Japan has produced in later times.

Mr. W. E. Grigsby then read a paper "On the Legacy of Iyeyasu."

The President, in expressing the pleasure that the two papers had given him, remarked on the contrast of the latter, which was of comparatively modern origin, with the sketch of ancient life which Mr. Aston had presented.

Mr. Aston thought that a warm welcome should be given to Mr. Grigsby's paper. It was the first instance that he was aware of, of a scholar having given this Society the benefit of his attainments in his own special subject as applied to the kindred subject among the Japanese. He considered that the production of this paper argued well for the future of this Society, and hoped that it might be the precursor of others.

Sir Harry Parkes was disposed to question the authenticity of the so-called Legacy or Iyeyasu and its legislative value. He believed the Japanese, in earlier days before power was usurped by the military class, had done better things in the way of law-making.

Mr. Syle remarked that the problem was an exceedingly interesting one which was presented by the actual national character of the Japanese—so permeated with Chinese ideas (as shewn in the Legacy of Iyeyasu), and yet continuing so little affected by it that the general result has been a type of character very unlike the Chinese—in some points, strongly contrasted with it. There must have been some very strong original element to have resisted the foreign influence so resolutely; and it will be a matter of great satisfaction if such investigations as we have in both the papers just read should lead to the ascertaining of what that element was. Mr. Syle then proposed that the special thanks of the Society be given to Mr. Aston and Mr. Grigsby.

Sir Harry Parkes and Dr. Murray rose simultaneously to second the motion, which was carried unanimously.

Mr. Syle announced that the Society was extending its relations in Europe, and that he had received from Italy, Austria and the United States, valuable exchanges for the Society's Journal. He also suggested that as the library of the Society was constantly increasing, additional facilities be given to members for obtaining access to it.

Mr. Grigsby supported the suggestion, and gave an amusing account of his failure on a recent occasion to gain admittance to the library, even at an hour when it was supposed to be open.

[142] Mr. Syle moved that the Council be invited to consider the desirability of making the meetings in Tôkiô monthly, and added that it might be a question whether it would not be well to have a local Secretary.

Sir Harry Parkes thought this was much too important a matter to be left to

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the Council. The Annual General Meeting to receive accounts, etc., would shortly be held, and he considered that this would present a suitable opportunity for the discussion of this question.

Mr. Aston suggested that the advertisement of the meetings should also state the heads of the questions to be brought forward.

Mr. Ayrton repeated the suggestion he made last year that notice of the meeting should be printed on post cards and sent to every member.

Sir Harry Parkes said that the Council had considered this suggestion, which was a very excellent one, but that besides the labour of having 150 post cards addressed there was the question of what it would cost to have them printed. The Society is neither numerous nor rich. The members of the German Society pay $10 entrance and $25 a year, while those of this Society pay no entrance fee and only $5 a year.

Dr. Murray thought that the time had arrived to increase the subscription. He considered it impossible and absurd to attempt to carry on this Society with a subscription of only $5. He therefore proposed that in future the subscription be fixed at $10.

Mr. Aston seconded this motion, which will be brought before the Annual Meeting already referred to.

Some discussion then took place about the date of the next Meeting, but it was decided not to change it from the fixed date, namely 14th July.

The Meeting then adjourned.

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THE YONEZAWA DIALECT.

By Charles H. Dallas, Esq.

[143] The dialect treated in this paper is that spoken in a large irregularly shaped plain of some 250 square miles in area, lying about midway between Sendai Bay and Niigata, just on the west of that central range of mountains which stretches like a back-bone from Kôdzuké to Awomori.

The word Yonézawa formerly designated the territory of the Uyésugi family, but being the name neither of a *shiu* nor of a *kôri* should perhaps now be restricted to their castle-town, the present capital of the Okitama Ken. In common parlance, however, the name is still extended to the whole of the plain at the southern extremity of Uzen (the new southern division of Déwa), of which a part belongs to the prefecture of Yamagata, a handsome town about 12½ *ri* to the north. Besides the central range already referred to, which marks the boundary between Déwa and Ôshiu, lofty mountains separate this plain from Aidzu on the south, and Echigo and Sakata on the west, so that it is entirely hemmed in by these natural barriers; except on the north, where a narrow gorge communicates with Yamagata and the rest of Déwa.

[144] It is said, but I have no means of testing the accuracy of the statement, that some of the peculiarities of this dialect are to a certain extent common to the language current in the rest of Déwa and the adjoining monster province of Ôshiu; but that the nasal intonation does not there acquire that intensity which makes a Yonézawa peasant hopelessly unintelligible to a man from Tôkiô. It is possible therefore that some of the facts put forward in this paper may apply to the more

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widely diffused dialect of Ôshiu, but I limit my responsibility to the assertion of their existence in the dialect of Yonézawa, where I have collected them from the lips of the natives.

Taking the ordinary language of Tôkiô as the standard for comparison, the Yônézawa dialect differs from it,

(1) In its peculiar intonation.
(2) In the pronunciation of certain syllables.
(3) In the meaning attached to certain words.
(4) In the possession of certain words not known in Tôkiô.
(5) In its phraseology and choice of expressions.

(1).—The intonation is exceedingly unmelodious, being deep, gruff, and intensely nasal, both nose and teeth being kept tightly closed. Among the lower classes this is aggravated by a peculiar lisp, from which as a rule the educated men are free. The difference of the mode of articulation is so great, that apart from the other peculiarities of the dialect, it is alone sufficient to render it a matter of no small difficulty for unaccustomed ears to understand the most ordinary sentence.

(2).—In the pronunciation of the syllables a distinction is made between イ and ヰ, both of which are in Tôkiô called *i*, the latter only retaining this sound, the former being called *é*. Thus they commence the syllabary *é*, *ro*, *ha*, and say *énu* 'a dog,' *éshi* 'a stone,' but *ido* 'a well,' *isha* 'a doctor.'

As at Tôkiô, no distinction is made between the syllables ヤ and ヱ, but the initial Y sound is invariably strongly pronounced, as *Yéchizen*, *Yéchigo*. The pronunciation [145] according to the spelling *Echizen*, which from its use in the columns of the *Japan Mail* I imagine to have the sanction of the highest authority, is not only never heard, but is hardly understood. '*Echigo*' would be understood to mean the wild strawberry.

The series of aspirate sounds (in Tôkiô *ha*, *hi*, *fu*, *he*, *ho*), all take an initial *F*, thus *fa*, *fi*, *fu*, *fe*, *fo*. In the mouths of many of the *samurai* this *F* often becomes *Fŭ*, thus *fŭana*, *fŭata*, *fŭato*, but the lower classes say decidedly *fana*, *fata*, *fato*, for 'a flower,' 'a flag,' 'a pigeon.' This interchange of the initial sound of F and H is of such frequent occurrence in philology as not to require any comment, but I may perhaps mention it as occurring in China, where *Foochow* becomes

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Hookchow in the mouths of the Cantonese, while every schoolboy is familiar with the fact of the ancient digamma having been replaced by the rough breathing.

In the T series, チ is pronounced *chi* as at Tôkiô by the majority of the educated class, but among the common people it becomes a lisping *tsi*, and as a natural sequence ヂ is pronounced *dzi*. In the pronunciation of the contracted syllables usually spelt *cha*, *cho*, *chu* (for *chi-ya*, *chi-yo*, *chi-yu*) it is to be noted that the Y of the second component part is preserved: as *tsiya*, *tsiyo*, *tsiyu*. Students of Chinese will remark that this change of *ch* into *ts* is identical with one of the differences existing between the Peking and Nanking dialects.

In the S series (at Tôkiô *sa*, *shi*, *su*, *se*, *so*) the *sh* appears to be transposed, and the series runs *sa*, *si*, *su*, *she*, *so*. This also chiefly applies to the lower classes, who lisp all the sibilants, and say *shenshei* for *sensei*, and for 'seventy-one' say *sitsi dziyu-itsi*. The word for 'seven' (*shichi*), which in Tôkiô is pronounced almost in one syllable, has its two syllables distinctly pronounced by all classes, and is made to rhyme with *ichi (sitsi, itsi)*. ジ has identically the same sound as ヂ, the Yonezawa dialect following the Tôkiô [146] practice of ignoring the natural distinction[1] between them.

The contracted syllables usually spelled *ja*, *jo*, *ju*, are pronounced *dziya*, *dziyo*, *dziyu*.

The *R* in the syllable *ri*, the pronunciation of which varies so much in different parts of Japan, is in most words absolutely silent; thus two rios is *ni 'iyô*.

The diphthong *ai*, especially in the word *nai*, is commonly pronounced *êi*, thus *wakaranêi*.

With regard to the sounds of the consonants, the impure nasal *n* before the *g*, which is a characteristic of the Tôkiô pronunciation, is intensified in Yonézawa, where the dialect delights in inserting this same *n* before *d*, *z*, and *j*; and its equivalent *m* before *b*. Thus I have heard 'a spoon' *(saji)* called *sandzi*, which, as the Governor at that time happened to be a 'Sanji,' was slightly confusing. With many

[1] It is stated that the distinction is observed at Kiôto, as well as all over Kiushiu; it is certainly marked in Satsuma, where the initial sound of ジ is that of the French J, ヂ retaining that of the English.

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persons the insertion of this *n* or *m* seems to be the only mode of marking the distinction between the sharp and flat mutes; *k*, *t*, *p*, except when doubled, commonly taking the sounds of *g*, *d*, *b*, while the genuine *g*, *d*, *b*, become *ng*, *nd*, *mb*,[2] as *wadagusi*, *iyanda*, *ambunai*. *Iku* (to go) appears to be an exception; it is always pronounced *ingu*.

(8).—Of the words used in a sense totally different to that which they bear in Tôkiô, the list that I have been able to collect is not a long one; but being all words in common use they are intensely bewildering to one unsuspicious of their local meaning. Thus soon after my arrival I remember feeling no little astonishment at hearing a fine powerful looking young fellow, who had been pointed out to me as having distinguished himself in the war, decline a challenge to box with the words *kowakûte sarenaish'!* It was not till some time afterwards that I [147] discovered that *kowai* is used only in the sense of 'fatigued', its ordinary meaning 'afraid' being invariably rendered by *okkanai*.

Wakaru not only means 'to divide' and 'to understand,' but also, and more generally, 'to be able,' 'to be sufficient,' 'to be suitable.' Thus: *Kore de mo wakaru*, 'this is enough.' *Mijikakute mo wakaru*, 'though it is short it will do.' *Omokute hitori de wakaranai*, 'it is too heavy: I can't carry it by myself.'

Dekiru and *deru* seem to have in some sort interchanged meanings, *deru* being used almost exclusively in the sense of 'to be finished'; *mo hambun deta kara, tôka goro deru*, 'it is half done already, so it will be finished about the 10th.' *Dekiru*, on the other hand, is never used in the sense of 'to finish,' 'to be able,' but in that only of 'going' or 'coming' (the meaning by the way of the characters with which it is written 出來). Thus: *Tadaima dekita*, 'He has just gone out'; *Asu deki bêi*, 'He will probably come to-morrow.'

Ippuku, 'one puff,' is used for one cupful (*ippai*). The invitation, 'Come in and have a cup of tea,' if given at the door or near the house of the speaker, is usually couched in the words *Yotte ippuku yokambêish'*, while a guest is pressed to take more tea with '*ima ippuku*.'

Some important differences are to be noticed in the use of the

[2] This observation must be borne in mind in pronouncing the local words given in a subsequent paragraph, since to avoid confusion the spelling does not imitate the pronunciation, but, except in contractions, follows the *kana*.

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pronouns. *Watakushi* and *sessha* are used by persons of some pretension to education, when speaking to a superior, but the word in everyday use by all classes is *ore*. For this, or rather for its incorrect form *ora*, the country-folks have a plural *orada*, while the townspeople and samurai use the regular plural *orera*.

Waré, which in Tôkiô as well as in the written language indicates the first person, is the ordinary word for 'you' in addressing inferiors.

Kisama, in Tôkiô usually expressive of extreme contempt, is used politely and familiarly among equals, and has the plural *kisama-gata*. It is also commonly employed to [148] inferiors, and is in that case expressive of kindness and courtesy.

Omaye is respectful, and is used to superiors only.

Omaye sama expresses extreme deference and was used in addressing the Prince.

Anata is never employed at all.

As in Tôkiô, *boku* and *kimi* are the words chiefly used for 'I' and 'you' by students, while their elders delight to display their Chinese scholarship by employing *midomo*, *sokka*, *kiden*, *sokomoto*.

For pronouns of the third person, though *koré*, *soré*, and *aré* are known, the most usual words are *kaitsu*, *koitsu*, *saitsu*, *soitsu* and *aitsu* (contractions for *kono yatsu*, *sono yatsu* and *ano yatsu*), which are used without any idea of rudeness, and for things as well as for persons. I may mention here that the word *yatsu*, which in Tôkiô has the contemptuous meaning of our word 'fellow,' has in Yonézawa the kindly and familiar meaning of the same term. Thus *riko na yatsu*, *teinei na yatsu* are complimentary expressions for 'a clever man,' 'a polite man,' while an intimate friend is described as '*kokoro-yasui yatsu*.'

(4.) Of the words peculiar to the dialect many of those I have noted have no equivalents in Tôkiô, the articles they represent being as little known as the names; but specimens of nearly all of them have been presented to the museum of the Asiatic Society. To this class belong:

Nizo.—A straw hat shaped like an inverted trowel, fitting closely to the back of the head, and projecting beyond the forehead.

Sakata-bôshi.—A straw helmet ornamented with coloured cotton, with a deep fringe falling over the shoulders.

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Kugu-bôshi.—A hood and cape in one reaching down to the knees, made of a grass called *Kugu*.

Suso-boso.—*Hakama* tight at the ancle, worn by both men and women of the samurai class.

Tachi-tsuke.—A similar garment to the preceding, but without the board in the back, worn by the lower classes of both sexes.

[149] *Habaki.*—Gaiters made of reeds.

Jimbei.—Straw shoes.

Igara-jimbei.—The same shaped shoe made of rushes (*igara*).

Oso-fuki.—A straw protection for the toes worn with the *waraji*.

Te no ura.—Similar to the last, made of plaited straw, and coming more under the foot.

Fuka-gutsu.—Straw boots reaching to the knee.

Take bo hora.—Clogs made of split bamboo used by children for sliding.

Kanjiki.—Snow shoes made of the shoot of a tree bent to an oval, with only a string across to fasten it to the foot.

Kana-kanjiki.—A bar of iron with three spikes worn under the foot to prevent slipping.

Tasu.—A basket, something like a knapsack, carried on the back, made of strips of cane (*matatabi*).

Hakigo.—A basket either of bamboo or cane, also carried on the back, but of a different shape.

Mekkai.—A scoop made of withes to carry sand or snow.

Bokkai.—A wooden shovel with the blade slightly hollowed.

Sunahaki.—A wooden spade with a flat blade and very long handle.

It will be observed that almost all the foregoing are the names of conveniences necessitated by the snow, which lies from the middle of December to the middle of March, and even on the level ground attains a depth of five or six feet.

The remaining words, representing things and ideas not specially pertaining to the locality, have equivalents in the language of Tôkiô, which I have in most cases appended in addition to the translation:

Abakeru..... to romp,..... Odokeru.

Baita..... firewood in lengths but not split.
N. B. the word *maki* is unknown.

Beko..... a bull or cow..... Ushi.

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Bero	the tongue	Shita.
Buijo noru	to swing	Buranko suru.
Bimbô / Bippô / Bôroku	bad	Warui.
Chinto / Chikuto	a little	Chitto.
Dada	mother	Haha.
Da sama / Da sa / Da tsa	mother	Okkasan.
Hen nashi	useless	Muyeki.
Jabara	a very elastic crape	Shibori banashi.
Kasé	an ornament for the hair, usually of coloured crape.	Atama kake no kiré.
Kata de	an interjection especially used with negations.	
Megoi	dear little	Kawairashii.
Mogosai	pity	Aware.
Mutsuri	always	Itsu de mo.
Najô	what sort? how?	Donna. Ikaga.
Nobeni	frequently	Saisai.
Nŭnai (prou. nŭnéi)	yes	Hai.
Ogurisama	the lady of the house	Okusama.
Oyagenai	lamentable	Kuyashii.
Patanto	bang	Battari.
Perori / Perotto	all	Mina.
Shaiko wa nai / Sunashi na	prying, gossiping	
Taka-ashi	stilts	Take-mŭma.
Tentsu	a lie	Uso.
Tepikapite / Tesozorashii	fidgetty	
Tetchiri	exact,	Kippari.
	plenty	Takusan.
Udatei	disagreeable	Iya na.
Utsukeru	to romp	Odokeru.

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Warashi ..... a lad of 5 to 15 (cf. *warabe* in book language.)
[151] Yachimuchi ..... valiant ..... Isamashii.
Yachamucha ..... headstrong ..... Muyami

(5).—Of the phraseology and choice of expressions in the dialect, the most marked features are its fondness for the simple forms of the verb, and the recurrence of the suffix *shĭ*, and the words *Nŭnai* and *Béi*. The polite verb *masu* or *masuru*, behind which at Tôkiô the tyro in the language can so comfortably veil his ignorance of the simple forms, has no place in this dialect; *gozaru* moreover is never heard. By way of replacing them a sentence is rendered polite by tacking on to the last word the suffix *shĭ*. Thus: *sayô de gozarimasu*, is rendered by *sô dash'*, *koré desŭ ka* by *koré kash'*, or more often *koitsu kash'*. Respecting the origin, derivation, or history of this suffix, I have been able to obtain absolutely no information. I have met with it as far south as the Takahara Tôge, some ten *ri* from Nikkô, and have traced it from there all through the Aidzu country and Yonézawa and have heard it also in Echigo. At Yamagata, already referred to, where the Môgami dialect is spoken, the *shĭ* is not heard, nor have I observed it on the Ôshiu kaidô, along which, as far as Fukushima, I have travelled eight times.

Nŭnai, meaning 'yes', corresponds to *Hai*, but is rather more decidedly affirmative. There is something inimitably comic about the pronunciation of this word, especially in the mouths of the women: the *n* is prolonged indefinitely, and at length the vowel comes out with a jerk. For the ejaculation to denote attention while listening to a superior the most common word is *ha*, but *hai* is sometimes used.

For the formation of the future, or affirmations of probability, *bei* is used to the almost total exclusion of the forms in *ô* and *de arô*; thus, *kuru béi*, *sô dambéi* (for *de aru béi*). *Béi* is a contraction for the *béshi* of the written language, and its use in colloquial is said to be the distinctive characteristic of the dialects of Ôshiu and all the northern part of this nameless main island. It is joined to the present indicative of verbs of the first conjugation, and to the root or present indicative of those of the second. [152] The two hardest worked works in the dialect are *damé* and *yokambéi*. To attempt to render in English all their shades of meaning would exhaust a dictionary. Suffice it that the primary meaning of *damé* is 'of no use,' while *yokambéi* means literally 'will

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be good.' They are generally exactly antithetical; for instance 'Will it do if I go to-morrow' is *Asu itte yokambei kash'?—Asu dame kash'*, 'To-morrow will be too late.'

The meaningless *né* so much used by the lower classes at Tôkiô is changed into *na* and is used by every one. In polite conversation it takes the suffix *shi* and becomes *nash'*. Occasionally a yokel, in his desire to be excruciatingly polite, attaches the *shi* to the preceding word as well; as *sô dash' nash'! Amari samuish' nash'!* But this is reprehensible and betokens a sad want of education!

Sa is *par excellence the* postposition of the dialect. Besides embracing all the ideas of motion towards and rest at, it occurs in such phrases as *Tsukuye sa oite o kure*,—'Put it on the table.' *Uchi sa wasurete kita*, 'I left it at home'; *Oboko sa kureta*, 'I gave it to the child.'

An expression of constant occurrence is *Najô na konda*, which is a contraction for *Nani jô na koto da* (*jô* meaning 'item,' 'particular'). It is used interrogatively in the sense of 'what is the matter?' and also reflectively to express surprise or inability to answer a question. *Najô* is much used in all interrogations. I was once politely asking a little lady of about eleven years old after the welfare of her mother, who had recently been ill, and for want of this word utterly failed to make myself understood, especially as none of the words that I knew for 'mother' seemed to be familiar to her. I was abandoning the attempt in despair, when a student came to my rescue with *Da sama wa najô de o idenashita kash'*, which elicited the prompt answer *shidai ni iish'*.

San as a title is of quite recent introduction, and its use is considered a sign of affectation, and is ridiculed as an imitation of a cockneyism of the metropolis. A few years ago the word was not known, and a gentleman said *Sama* [153] at full length when speaking of or to the Prince or a member of the Prince's family, and to his own father and elder brothers. For all other persons the title was *Dono*, used not with the family name, but with the *na* or given name. The lower classes use *Sama* more generally, and have for it the contraction *sa* and *tsa*.

The favorite word for feeling unwell is *yameru: ha ga yameta, atama ga yameta* are the only expressions ever heard for 'I have a tooth-ache,' 'a head-ache, etc.' It is written with the character for *itameru* 痛 not with that for *yamai* 病 as given in Dr. Hepburn's Dictionary.

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Amari is especially used in the two phrases *amari ii*, meaning 'with pleasure' or simply 'yes,' and *amari yokambéi*, 'that will be the very thing.'

Nambu does duty both for *ikutsu* and *ikura* (how many, how much), and *nambu ka* for *sazo*, as *Nambu ka o kowakatta beish'!* 'How tired you must be!'

There are a few other words which are known, but not much used in Tôkiô, but which are specially affected by the Yonezawa people of all classes:

Oboko, for instance, is almost the only word for children of both sexes.

Samazama and *Shuju*, which in Tôkiô are considered to belong to the book style, replace *iro-iro* with the meaning 'various,' 'all sorts of.'

Zôsa-nai is always used for 'easy' to the exclusion of '*yasashii*,' which is never heard.

Itamashii 'deplorable,' *tawai-nai* 'senseless,' and *shôshi* 'pitiful,' are all common; and a coolie makes believe to decline a second cup of *saké* with the phrase *Ora fa o shôshi na!*

Kusai (stinking) is used in the locution *mi-kusai* 'ugly,' 'unpleasing to the sight,' and sounds to Tôkiô ears singularly forcible and inelegant.

It will of course be understood that in collecting the foregoing words and phrases I have not attempted to exhaust the peculiar expressions of the dialect; but on the [154] eve of quitting the district I threw together those facts which had from time to time come under my observation, in the belief that, to those who from a philological point of view are making a study of the Japanese language, no contribution of new material, however humble, can be totally devoid of interest.

Tôkiô, March, 1875.

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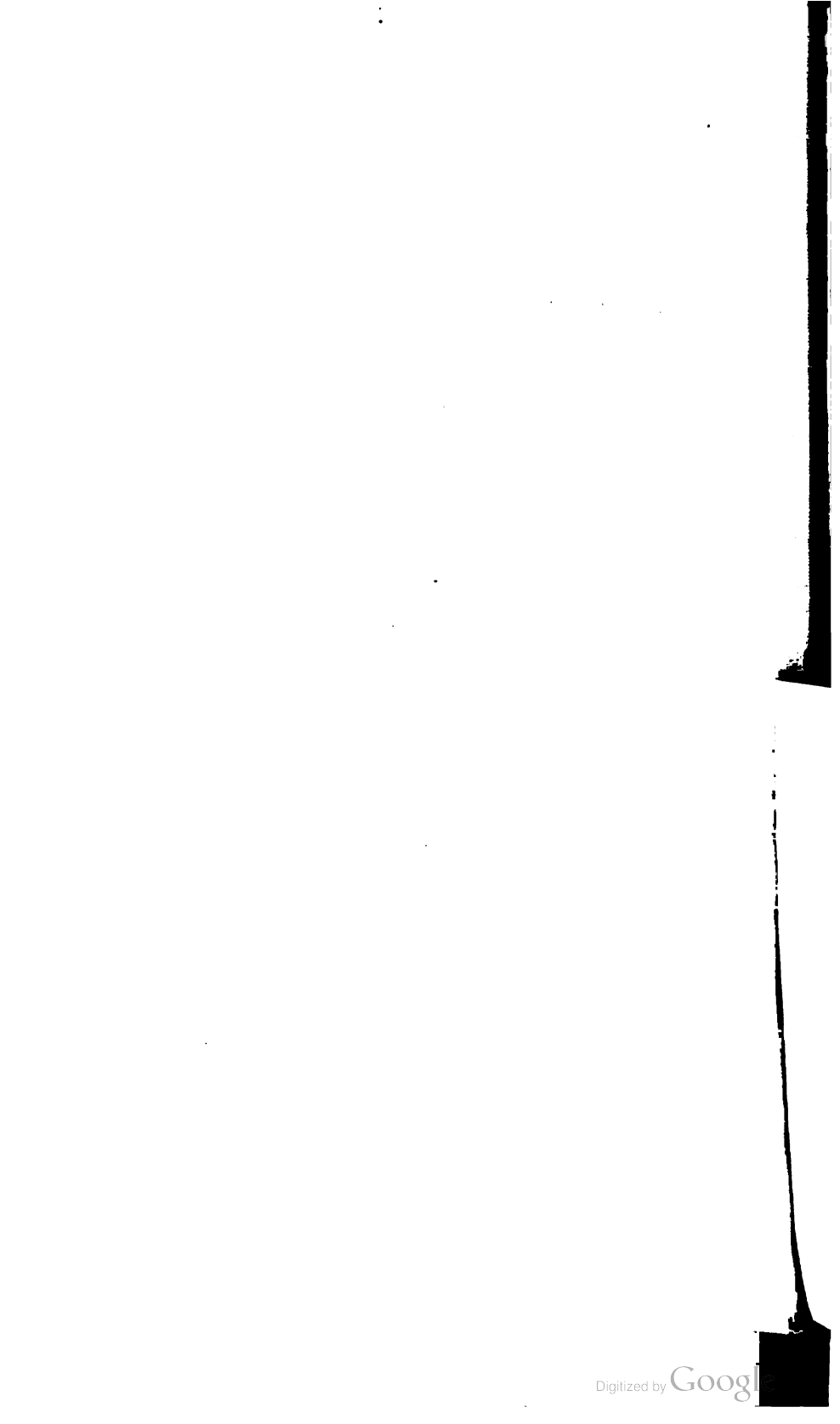
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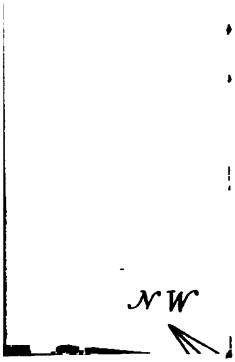

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TABLE IV.

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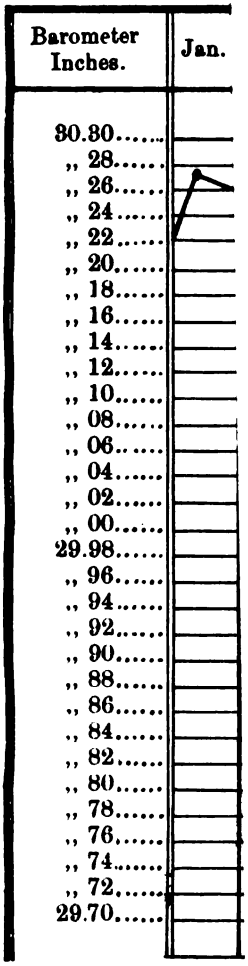

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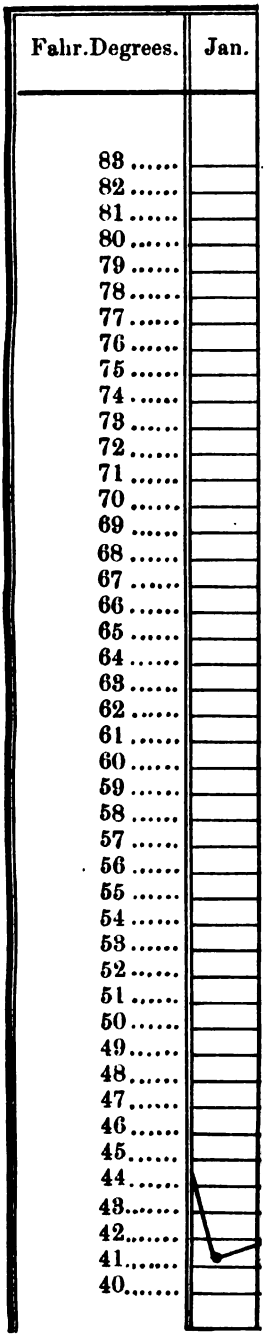

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TRANSACTIONS

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OF

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APPENDIX, VOL. III.

THE REVIVAL

OF

PURE SHIÑ-TAU.

BY

E. M. SATOW, Esq.,

Japanese Secretary to H. B. M. Legation,

Yedo.

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THE REVIVAL OF PURE SHIÑ-TAU.*

By 'pure Shiñ-tau' is meant the religious belief of the Japanese people previous to the introduction of Buddhism and the Confucian philosophy into Japan, and by its revival the attempt which a modern school of writers has made to eliminate these extraneous influences, and to present Shiñ-tau in its original form. The very name of Shiñ-tau is repudiated by this school, on the ground that the word was never applied to the ancient religious belief until the introduction of Buddhism and Confucianism rendered its employment necessary for the sake of distinction, and the argument that, because this belief is called by a Chinese name, it must therefore be of Chinese origin, is of no value whatever.

The statement that the study of the Chinese classics was introduced in the year 285 A. D., though received without mistrust by European writers on the authority of native historians, may certainly be questioned. The earliest extant account of historical events (the Ko-zhi-ki) dates only from the year 711 of our era, while no attempt whatever of the kind is recorded to have been made earlier than the 5th century; and yet the Ni-hoñ-gi (720 A. D.) affects to give the precise dates, even to the day of the month, of events that are ascribed to the seventh century [2] B. C., or fifteen centuries back. An even stronger ground for disbelieving the accuracy of the early chronology is the extraordinary longevity assigned by it to the early Mikados. Of the fifteen Mikados from Zhiñ-mu Teñ-wau down to Ou-zhiñ Teñ-wau's predecessor, eleven are said to have lived considerably over one hundred years. One of them, Suwi-niñ Teñ-wau, reached the age of one hundred and forty-one years, and his successor Kei-kau Teñ-wau lived to the age of one hundred and forty-three, while to Ou-zhiñ Teñ-wau and his successor Niñ-

* Revised by the author, 1882.

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toku Teñ-wau are given one hundred and eleven and one hundred and twenty-three years respectively. They are, however, surpassed in longevity by the famous Take-uchi no Sukune, who is reported to have died in A. D. 390 at the age of three hundred and fifty-six years. A further reason for doubting the statement is that the Ko-zhi-ki names the "Thousand character Composition" *(Señ-zhi moñ)* as one of the books brought over in A. D. 285, although it is certain that it could not have reached Japan much earlier than the middle of the 5th century.[1] All that can safely be said is that Confucianism probably preceded Buddhism.

The first Buddhist images and Sûtras were brought to Japan from Korea in the year 552, if we can believe the Ni-hoñ-gi, but it was long before the religion obtained much hold on the people. In the beginning of the ninth century the priest Kuukai (b. 774, d. 835, better known by his posthumous name of Kou-bofu Dai-shi) compounded out of Buddhism, Confucianism and Shiñ-tau a system of doctrine called Riyau-bu Shiñ-tau. Its most prominent characteristic was the theory that Shiñ-tau deities were nothing more than transmigrations of Buddhist divinities, and Kuu-kai is accused of perpetrating various forgeries in order to obtain credit for his teaching. The alliance thus effected between the native belief and the foreign religion enabled the latter to obtain the ascendancy to which it was entitled on account of its superior adaptation to man's sense of his own shortcomings and longing for perfection. Buddhism became the religion of the whole nation, from the Mikado [3] down to the lowest of his subjects, and continued to hold that position until the period of the Tokugaha Shiyauguñs, when it was supplanted in the intellects of the educated class by the moral philosophy of Choo He. The practise of pure Shiñ-tau was kept alive for one or two centuries at the Mikado's court, and at a few Shiñ-tau temples which might be counted on one's fingers, but finally degenerated into a mere thing of forms, the meaning of which was forgotten, while the forms themselves were perverted.

In addition to the Riyau-bu Shiñ-tau there arose at least three other schools; namely the Yuwi-itsu Shiñ-tau invented by Yoshido Kanetomi about the end of the 15th century, that of Deguchi Nobuyoshi *Kañnushi* of the *Ge-kuu* temple in Ise, about 1660, and the Suwi-ga Shiñ-tau of

[1] Ko-zhi-ki Deñ, vol. xxxiii., f. 27.

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Yamazaki Añ-sai (b. 1618, d. 1682). The first of these is chiefly founded on the Buddhism of the Shiñ-goñ-shiu, the second explains the phenomena of the divine age by means of the Book of Changes (*Yeki* or I-king); the third is a combination of the Yoshida Shiñ-tau and Choo He's philosophy.[2]

From these few remarks it may be inferred that the successive waves of Buddhist and Chinese doctrine which had passed over Japan during a period of more than a thousand years had considerably transformed the belief of the people, and if the only means of discovering its original nature were an analysis of the teaching of the above-mentioned sects, and the rejection of whatever bore traces of a foreign origin, the task would necessitate a wide knowledge of Buddhism in both India and China, as well as of the Confucian philosophy, and perhaps of Taouism. But fortunately, there exist independently in the Ko-zhi-ki, the Mañyefu-shifu, the Ni-hoñ-gi, the Ko-go-zhifu-wi and the Norito, abundant materials for the student of the divine age, and it was to these books that Mabuchi, Motowori and Hirata devoted their attention. Together with Kada they form the revivalist school of pure Shiñ-tau. I propose to give some account of their lives and works, and the views held by them as to the essence of Shiñ-tau.

[4] During the long period amounting to nearly three hundred years which elapsed between the downfall of the Hou-deu family in 1334, and the final establishment of the Tokugaha family as *de facto* rulers of Japan after the death of Hideyoshi (Taicosama) in the end of the 16th century, Japan had been the scene of constant civil war and rebellions. The Ashikaga family, which established itself at Kiyau-to with a branch in the Kuwañ-tou, was utterly unable to control its unruly vassals, and the capital of the Mikado was frequently delivered up to fire and sword. In 1467 and during the six following years, it became the battle-field of the rival retainers of the Ashikaga family, and the greater part of the city was twice burnt to the ground. The loss to Japanese literature by the destruction of books is said to have been immense. Apart from the immediate effects of civil war, learning must necessarily have decayed during a period when the profession of the soldier was the only honourable calling, and every man was obliged

[2] Zoku-Shiñ-tau Tai-i, vol. iv., f. 5.

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to be constantly under arms for defence or attack. Nobunaga, it is true, restored peace at the capital and in the surrounding provinces, but civil wars still went on in the more remote parts of the country, and he had to be perpetually in the field against rival chiefs. Hideyoshi, who succeeded him as the chief military leader, did much to facilitate the pacification of the Empire. He broke the power of the Mouri family, conquered the turbulent *dai-miyau* of Kiu-shiu, annihilated the Wodahara Hou-deu who ruled over the Kwañ-tou, and then despatched his warriors to fight and die in Korea.

The fruits of these efforts were reaped by Iheyasu, whose power was virtually rendered absolute by the victory of Sekigahara, and who became Shiyauguñ in 1603. During the remainder of his life, with the exception of the two short campaigns against Hideyori's partizans in 1614 and 1615, he lived tranquilly at Suñ-pu in Saruga, the modern Shidzu-woka. His chief pursuit seems to have been the collection of old manuscripts, and it is chiefly owing to his exertions that what remains of the ancient literature has been preserved. The Suñ-pu-ki, quoted by [5] Hirata,[3] mentioned a large number of works brought to him from various parts of the country, some from Kiyau-to, and others from Kamakura, and a few from the monastery of Minobu Sañ in Kafu-shiu. Before his death he gave directions that the library of Japanese and Chinese books which he had formed at Suñ-pu should be divided between his eighth son, the prince of Wohari, and his ninth son, the prince of Ki-shiu. The former received the greater part of the Japanese books, the latter the Chinese books. Under the direction of the Prince of Wohari were composed the Zhiñ-gi-hofu-teñ and Ruwi-zhiu Ni-hoñ-gi. One of Iheyasu's grandsons, the famous second Prince of Mito (1622-1700), known variously as Mito no Kuwau-moñ Sama, and Mito no Gi-kou (Mitsukuni was his *nanori*), also collected a vast library by purchasing old books from Shiñ-tau and Buddhist temples and from the people. With the aid of a number of scholars, amongst whom tradition says were several learned Chinese who had fled to Japan to escape from the tyranny of the Manchu conquerors, he composed the Dai-Ni-hoñ-shi, or History of Great Japan, in two hundred and forty books. This book is the standard history of Japan to this day, and all sub-

[3] Tamadasuki, vol. ii., f. 58.

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sequent writers on the same subject have taken it as their guide. He also compiled a work on the ceremonies of the Imperial Court, consisting of more than five hundred volumes, to which the Mikado condescended to give the title of Rei-gi Ruwi-teñ. To defray the cost of producing these two magnificent works the Prince of Mito set aside at least 80,000 *koku* of rice per annum (some accounts say 50,000, others 70,000 *koku*).

While the study of ancient history thus received powerful impulse from men of high position, there manifested itself amongst the lower ranks an equal desire to cultivate the native literature. Two of the earliest who turned their attention to this subject were the Buddhist priest Kei-chiyuu and the Shiñ-tau priest Kada no Adzuma-maro.

[6] Kei-chiyuu was the son of a *samurahi* in the service of Awoyama, the *dai-miyau* of Ama-ga-saki in Setsutsu. He was born in 1640, and early distinguished himself by an excellent memory for poetry, having, as it is said, committed the Hiyaku-niñ shiu to memory in the space of ten days, when he was only five years of age. At the age of eleven he became a neophyte at the monastery of Meu-hofu-zhi at Imaṣato near Ohozaka, much against the inclination of his parents. Two years later he shaved his head and removed to the famous monastery of Kau-ya-sañ in Ki-shiu. In 1662 he became an inmate of a monastery near Ikudama at Ohozaka, but finding its proximity to the city disagreeable, he absconded, leaving a verse behind on the wall. From this time he travelled much in the central parts of Japan, studying Buddhism, Sanscrit, Chinese literature and poetry, and Japanese history; but his favourite occupation was the study of Japanese poetry. In 1680 his former teacher, the abbot of Meu-hofu-zhi, died, and left directions that he should be succeeded by Kei-chiyuu, who accepted the charge simply for the sake of his mother, who was living at Imasato. About this time the Prince of Mito above alluded to invited him to Yedo in order to complete a commentary on the Mañ-yefu-shifu which had been commenced by Shimokahabe Chiyau-riu. He declined the invitation, but pleased with the Prince's love for ancient learning, compiled a similar work for him called Mañ-yefu-dai-shiyau-ki in twenty volumes, with a supplement in two volumes. After the death of his mother he left the monastery, and retired into private life in a small cottage in the neighbourhood of Oho-

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zaka, whence the repeated invitations of the Prince of Mito failed to draw him. He died in the year 1701. His published works relating to poetry and general literature number sixteen, and he is said to have left a quantity of unfinished manuscript behind him.[4]

Besides Kei-chiyuu and Shimokahabe Chiyau-riu (1622-1684) Hirata mentions Nashimoto Mo-suwi[5] as one of the [7] first who vindicated the style of the Mañ-yefu-shifu against that of the modern school. His works are extremely rare. The efforts of these three men were, however, confined to the department of poetry, and the credit of having founded the modern school of pure Shiñ-tau belongs to Kada.

I.

Kada Adzuma-maro, as he is most commonly styled, was born in 1669 near Kiyau-to, his father being the warden of the temple of Inari between Kiyau-to and Fushimi. From his boyhood up he was fond of study, and devoted himself to antiquarian investigation. He thus acquired an accurate knowledge of the ancient national records, the old laws, of which only fragments have been preserved, the early prose and poetry and the chronicles of the noble families. Though absolutely without any one to point out the way to him in these researches, he was nevertheless enabled to make many valuable discoveries. When considerably over sixty years of age he went to Yedo, where his reputation came to the ears of the government, and he received a commission from it to revise and edit the ancient texts. After residing at Yedo for some years he returned to Kiyau-to, and the governor of Fushimi presented him with a considerable sum of money as a reward for his labours. It is said that the commission came in the first place from the Mikado, who was obliged to communicate with his subjects through the Shiyauguñ, and that the money-reward came from the same source, but there is no documentary evidence of this.

Kada had long cherished a scheme for the establishment of a school for the study of Japanese language and literature, and he sent in a memorial on the subject to the authorities at Kiyau-to, probably to the *machi-bu-giyau*, or to the Shiyau-guñ's Resident (*shiyo-shi-daï*). But he

[4] *Ki-shiñ Deñ, San-shifu-roku Ka-shifu Riyaku-deñ.*

[5] *Tamadasuki*, vol. ix., f. 2.

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died soon after (in 1786), and the project was never carried out. The Ki-zhiñ Deñ indeed says that the necessary sanction had been given, and that Kada had already selected a spot near the burial-place of the Higashi Hoñ-guwañ-zhi, but Hirata (in the Tamadasuki) thinks that this so-called sanction, [8] if ever given, was not formal and official. Kada's memorial has lately been published in a separate form by Hirata Kanetane and can easily be obtained. It is a most vigorous protest against the utter neglect of Japanese learning for Chinese, which had up to that time been almost universal.

It is usually stated that Kada, shortly before his death, gave orders to his pupils to destroy all his manuscripts, on the ground that they must contain many errors, and be therefore calculated to mislead students, while the good which might be in them could easily be discovered without their aid. Hirata Atsutane repeats this story, but it is stated, on the authority of Atsutane's son Kanetane, that the Kada family still possess several boxes full of unpublished writings of Adsuma-maro. It may be doubted, however, whether they are of much actual value, seeing that their author was the first who attempted to elucidate the meaning of the ancient books, and as Atsutane says, 'we can see from the works which Kada published during his life-time, such as his commentaries on the Mañ-yefu-shifu and Zhiñ-dai no Maki, that he had good reason to be dissatisfied with the conclusions which he had reached.'

Kada's views may be briefly stated as follows: "Learning is a matter in which the highest interests of the empire are involved, and no man ought to be vain enough to imagine that he is able by himself to develope it thoroughly. Nor should the student blindly adhere to the opinions of his teacher. Any one who desires to study Japanese literature should first acquire a good knowledge of Chinese, and then pass over to the Mañ-yefu-shifu, from which he may discover the ancient principles of the divine age. If he resolve bravely to love and admire antiquity, there is no reason why he should fail to acquire the ancient style in poetry as well as in other things. In ancient times, as the poet expressed only the genuine sentiments of his heart, his style was naturally straight-forward, but since the practice of writing upon subjects chosen by lot has come into vogue, the language of poetry has become ornate and the ideas [9] forced, thus producing a laboured appearance. The expression of

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fictitious sentiment about the relations of the sexes and miscellaneous subjects, is not genuine poetry."[6] Kada, true to his own principles, never wrote a line of amatory poetry. We can readily understand his contempt for the modern versifiers, when we recall the picture of licentiousness which some of the verses in the popular collection called *Hiyaku-niñ shiu* present. What in English has to be disguised under the name of love was too often mere sensual passion indulged in at the expense of the most sacred domestic relations. During the middle ages it seems to have been the practice for persons skilled in the trifling art of making stanzas of thirty-one syllables to assemble at drinking parties, and to draw lots for subjects to write about. The 67th stanza of this collection contains an allusion to this custom.

Atsutane has a note in the Tamadasuki, the object of which is to refute the common notion that Kei-chiyuu, Motowori and Mabuchi ought to be considered the ancestors of the antiquarian school, to the exclusion of Kada. The cause of this notion is that the men who entertain it are merely versifiers and take verse-making to be an essential part of the labours of the antiquarians. Kei-chiyuu, who was a Buddhist priest, certainly did some service in editing the Mañ-yefu-shifu, but to praise Mabuchi and Motowori for their poetry alone is to misapprehend the real character of the work they performed. This consisted in the revival of Shiñ-tau, and poetry was merely secondary with them. Kada's memorial proves that he was the founder of the school of Pure Shiñ-tau. Mabuchi was his pupil, and Motowori in his turn the pupil of Mabuchi.

Kada had no children of his own, and adopted his nephew Arimaro (1706-1751). Arimaro came to Yedo, and taught his uncle's views with some success. He was particularly learned in that branch of Japanese archæology which deals with the ancient system of government under the Mikados, and having attracted the notice of [10] Tayasu Kiñ-go (1715-1771), the first of the name, who took great interest in the subject, he entered the service of that Prince. A dispute subsequently took place, on account of which Arimaro resigned, but he continued to take pupils at his own house. There is a notice of his life and works in the Ki-zhiñ Deñ.

[6] Preface of Nobuyoshi to the collection of Kada's verses entitled Shiyuñ-yefu-shifu, quoted in the Tamadasuki, vol. ix., p. 6.

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When Arimaro quitted the service of Tayasu Kiñ-go, he recommended a certain Mabuchi in his stead.

II.

Mabuchi was a man of ancient lineage, being descended from Taketsunumi no mikoto, the demi-god who took the form of a gigantic crow and acted as guide to Zhiñ-mu Teñ-wau in his invasion of Yamashiro, as related in the Ni-hoñ-gi.[7]

About the middle of the 18th century there was a *Shiñ-tau* priest of one of the lesser shrines of Kami-gamo near Kiyau-to, whose daughter, one of the Emperor's women, received a gift of 500 *koku* of land at Wokabe near Hamamatsu in Towotafumi. With these lands she endowed a shrine to the gods of Kamo and made her brother Michi-hisa chief warden of it. The living, if it may be so called, became hereditary in the family of his younger brother and heir, and three generations later the name of the village was adopted as the family surname. In the end of the 17th century the wardenship was held by Wokabe Zhi-rau-za-we-moñ, and Mabuchi, who was his nephew, was born at Wokabe in 1697.

His biographer says that at one period he was desirous of entering the Buddhist priesthood, but his parents refused their consent, and he thereupon quitted their roof for that of the chief innkeeper at Hamamatsu, whose daughter he married. Amongst his friends were two *Shiñ-tau* priests, Sugiura Shinano no Kami and Mori Miñ-bu no Seu-fu, both pupils of Kada. Sugiura's wife was a niece of Kada, who on his way to and from Yedo used to stop with his relations, and Mabuchi thus made [11] his acquaintance. It was about this time that he changed his previous name of Masa-fuji for that of Mabuchi, by which he is generally known.[8]

In 1733, at the age of thirty-six, he went up to Kiyau-to and became one of Kada's pupils, but as Kada died in 1736, he only profited by his teacher's lessons for a comparatively short period. Nevertheless, he made excellent use of his time, as is shown by the fact that he alone of

[7] Vide Klaproth's introduction to the "Annales des Dairi," which contains a fairly good translation of vol. iii. of the Ni-hoñ-gi.

[8] Previous to this he had either received or chosen five other names in turn at different periods of his life.

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all those who studied under Kada, surpassed his master in learning. In 1738 he removed to Yedo, where he passed the remainder of his life. Having established his reputation as a scholar, he entered the service of Tayasu Kiñ-go in 1746, with whom he remained fourteen years, until old age compelled his retirement. He died in the end of 1769 at the age of 72, and was buried at the Buddhist monastery of Tou-dai-zhi at Shinagaha.

Motowori in his Tamagatsuma,[9] under the heading "Agatawi[10] no ushi's claim to be considered the founder of ancient learning" says: "The branch of study which consists of investigating the ancient language and modes of thought with a mind perfectly freed from Chinese influences was initiated by Mabuchi. Before his time the usual studies were confined to the Ko-kiñ-shifu and later collections. The Mañ-yefu-shifu was considered obscure and unintelligible. No one was capable of appreciating its merits or of distinguishing between the more ancient and modern poems which it contains, and no one ever attempted to acquire the language of the Mañ-yefu-shifu, so as to wield it as his own. The power of acquiring this ancient language so as to employ it with perfect ease, of composing poetry in the style of the Mañ-yefu-shifu and of writing prose in the ancient manner, which some have attained to in later times, is owing to the teachings of Mabuchi. The Moderns may imagine that they have made this acquisition by their own efforts, but there is no one who does not stand in debt to him. Every one [12] knows now that in order to understand the ancient texts, such as the Ko-zhi-ki and Ni-hoñ-shiyo-ki,[11] it is necessary to avoid being misled by Chinese notions, to study antiquity and to be guided by ancient ideas, but the knowledge of these truths is the very spirit of Mabuchi's teaching of the Mañ-yefu. The service which he performed in founding a branch of learning which has such high claims to veneration as the study of antiquity, is one of incalculable value to mankind."

Ka-tou Chikage, who for many years was a pupil of Mabuchi, is the best authority for biographical and literary details. He says: "From a very early age I lived in Mabuchi's service, and I was both

[9] Vol. i., f. 8v.

[10] Name adopted by Mabuchi for his place of abode.

[11] Another name for the Ni-hoñ-gi.

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a constant spectator of his mode of life and an auditor of his words. He was very different in appearance from ordinary men. From his looks he might be taken to be a person of small acuteness and slow in thinking, but sometimes the true heart of a Japanese burst forth in his language, which was then distinguished by the most perfect eloquence. That his hand-writing resembled that of ancient manuscripts, was no doubt the effect of his unwearied and long continued diligence in the study of antiquity. His house and furniture were both formed upon ancient models, and he neither lent ear to nor bestowed attention on anything modern. In this way his mind naturally acquired an old-fashioned mould, and all its productions, whether written or verbal, were pervaded by the same tint.

"In composing poetry he worked most conscientiously. Every stanza was the subject of much consideration and frequent correction. Three separate styles are to be distinguished in his compositions. The first was imitated from Kada no Adzuma-maro, and is elegant and feminine in form. The second is entirely his own; polished, musical, and yet manly. In his later years his range of thought was higher, and his language was natural and simple to a degree not to be attained by ordinary persons."[12] [18] Mabuchi's chief aim was to carry out the idea originated by Kada, namely to illustrate the prehistoric age. For this purpose he considered that it was necessary to begin by explaining the Mañ-yefu-shifu. Poetry was with him only the means to an end. At the only interview which ever took place between Mabuchi and Motowori, the latter spoke of his own project of writing a commentary on the *Ko-zhi-ki*. Mabuchi replied that he also had wished to explain the sacred writings, but in order to do this it was first necessary to get rid of the effects of Chinese phliosophy, and discover the genuine beliefs of antiquity. The first step towards their elucidation was to recover the ancient language, which could only be done by studying the Mañ-yefu-shifu. This preliminary task he had himself accomplished, and he urged Motowori, who was yet young, to apply himself diligently to the study of the *Ko-zhi-ki*.

[12] From the preface to a collection of Mabuchi's prose and poetical works, entitled Agatawi Kamo no Ka-shifu, quoted by Hirata.

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It appears that some writers have accused Motowori of inventing these views for Mabuchi, but the writings of the latter are evidence of his having held these opinions. In his Nihi-manabi (quoted in the Tamadasuki) he says: "The Moderns have held the erroneous opinion that the Mañ-yefu-shifu contains nothing but poetry, which is fit only for women to amuse themselves with, and many shallow fools, who cannot understand the ancient poetry and are ignorant of the ancient books, have made attempts to explain the divine age according to ideas derived from Chinese literature. Thus their utterances are mere sophistry, utterly opposed to the ancient Japanese 'way.'"

Mabuchi then proceeds to lay down the course of study which should be followed in order that the 'way' of the gods and ancient emperors may be thoroughly comprehended. The old poetry is to be taken at the commencement, namely the collection entitled the Mañ-yefu-shifu, and the *Norito*, as being the earliest specimens of prose, should come next. Next follow the *Ko-zhi-ki*, *Ni-hoñ-ki* (also called *Ni-hoñ-shiyo-ki*), *Shiyoku Ni-hoñ-gi*, and other ancient histories. After this the books which treat of rites and ceremonies, such as the *Yeñ-gi Shiki*, the [14] *Sei-kiu-seu*, the *Hoku-gañ-seu*, *Gau-ka Shi-dai*, etc., must be carefully read in proper order, and the *Monogatari*,[18] or earliest writings in syllabic characters (*kana*), must be studied for the sake of the traces which they contain of the archaic language.

Mabuchi was a very voluminous writer. A list of his works is given at the end of the notice of his life in the *Sañ-zhifu-roku Ka-shifu Riyaku-deñ*. Many of them have been superseded by the writings of subsequent authors, but a considerable number are still worthy of being studied. These are the *Mañ-yefu-kau*, or commentary on the Mañ-yefu-shifu, and its supplement, *the Ko-kiñ-shifu Uchi-giki*, commentary on the collection called *Ko-kiñ-shifu*, *Hiyaku-niñ-shiu Ko-setsu* and *Hiyaku-niñ-shiu uhimanabi*, commentaries on the collection of verses called *Hiyaku-niñ-shiu*; *Kuwañ-zhi-kau*, a lexilogus of *Makura kotoba*, *Ise-Monogatari Ko-i* and *Tai-i*; and the *Geñ-zhi Monogatari Shiñ-shiyaku* (new comments on), besides those which are noticed below.

[18] A list of the chief *Monogatari* is given in the third volume of the bibliographical work called *Guñ-shiyo ichi-rañ*. The Heike-monogatari does not really belong to this class, as has been erroneously supposed by some students.

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In the *Koku-i-kau* we have Mabuchi's views upon the worthlessness of the Chinese philosophy. He asks: "Wherein lies the value of a rule of conduct? In its conducing to the good order of the state." He argues that 'while the Chinese for ages past have had a succession of different dynasties to rule over them, Japan has been faithful to one uninterrupted line of sovereigns. Every Chinese dynasty was founded upon rebellion and parricide. Sometimes a powerful ruler was able to transmit his authority to his son and grandson, but they in their turn were inevitably deposed and murdered, and the country was in a perpetual state of civil war. A philosophy which produced such effects must be founded on a false system.

'When Confucianism was first introduced into Japan, the simple-minded natives, deceived by its plausible appearance, accepted it with eagerness, and allowed it to spread its influence everywhere. The consequence was the civil [15] war which broke out immediately after the death of Teñ-ji Teñ-wau in 671 between that emperor's brother and son, which only came to an end in 672 by the suicide of the latter. In the 8th century the Chinese costume and etiquette were adopted by the Court. This foreign pomp and splendour covered the rapid depravation of men's hearts, and created a wide gulf between the Mikado and his people. So long as the sovereign maintains a simple style of living, the people are contented with their own hard lot. Their wants are few and they are easily ruled. But if the sovereign has a magnificent palace, gorgeous clothing, and crowds of finely-dressed women to wait on him, the sight of these things must cause in others a desire to possess themselves of the same luxuries; or if they are not strong enough to take them by force, it excites their envy. If the Mikado had continued to live in a house roofed with shingles, and whose walls were of mud, to wear hempen clothes, to carry his sword in a scabbard wound round with the tendrils of some creeping plant, and to go to the chase carrying his bow and arrows, as was the ancient custom, the present state of things would never have come about. But since the introduction of Chinese manners, the sovereign, while occupying a highly dignified place, has been degraded to the intellectual level of a woman. The power fell into the hands of servants, and although they never actually assumed the title, they were sovereigns in fact, while the Mikado became an utter nullity.'

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Some one had observed to Mabuchi that it was owing to the Chinese system of morals that the practice of marriage between brothers and sisters was discontinued. He explains in reply that 'according to ancient Japanese custom the children of the same mother were alone regarded as united by the fraternal tie; that it was not considered in any way objectionable for children of the same father by different mothers to intermarry. The Chinese forbid marriages between persons who bear the same surname, and it was the adoption of this ridiculously strict rule that led to the gradual disuse of the ancient practice, which was in itself quite harmless.

'[16] In ancient times, when men's dispositions were straightforward, a complicated system of morals was unnecessary. It would naturally happen that bad acts might occasionally be committed, but the straightforwardness of men's dispositions would prevent the evil from being concealed and growing in extent. So that in those days it was unnecessary to have a doctrine of right and wrong. But the Chinese, being bad at heart, in spite of the teaching which they got, were only good on the outside, and their bad acts became of such magnitude that society was thrown into disorder. The Japanese being straightforward could do without teaching. It is said on the other side that as the Japanese had no names for benevolence, righteousness, propriety, sagacity and truth, they must have been without those principles. To this Mabuchi replies that they exist in every country, in the same way as the four seasons which make their annual rounds. In the spring the weather does not become mild all at once, nor the summer hot. Nature proceeds by gradual steps. According to the Chinese view it is not spring or summer unless it becomes mild or hot all of a sudden. Their principles sound very plausible, but are unpractical.'

Mabuchi rendered a great service to the study of Shiñ-tau by the pains which he took to illustrate the *Norito* in a commentary entitled Norito Kau (1768). The *Norito* consists of a selection of the liturgies used at certain of the more important Shiñ-tau festivals, and together with those parts of the *Jiyau-guwañ Gi-shiki* and *Yeñ-gi Shiki* which contain directions for the celebration of such festivals, afford the most authentic information as to the native religious ceremonies. Some of them contain passages of remarkable beauty, especially those which are

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considered to be most ancient in their origin, such as the *Ohobarahi no Kotoba* and *Toshigohi no Matsuri no Kotoba*. The festival of the "General Purification" (*Ohobarahi*) is first mentioned in the Ko-zhi-ki as having been celebrated after the death of Chiyau-ai Teñ-wau (200 A. D. according to the native chronology), but is supposed to have instituted as far [17] back as the time of Izanagi no mikoto. Mabuchi, who may be taken as a pretty safe guide in such matters, attributes the liturgy as it is preserved in the Yeñ-gi Shiki to the reign of Teñ-mu Teñ-wau (673-686), by which period the words, in the earliest times composed by the Nakatomi on each occasion, had assumed a definite form consecrated by precedent. The *Yeñ-gi Shiki*, however, belongs to the 10th century, and therefore the date at which the *Norito* are actually known to have been committed to writing is two centuries later than that of the *Ko-zhi-ki* and *Ni-hoñ-gi*. Still more ancient than the *Ohobarahi no Kotoba* is said to be the *Idzumo Kuni no Miyatsuko Kamu yogoto*, which Mabuchi assigns to the reign of Zhiyo-mei Teñ-wau (629-641), though the origin of the ceremony at which it was used is evidently far back in the prehistoric age. The Toshigohi, Hirose and Tatsuta *Norito* are later again than the *Ohobarahi*. By a fortunate coincidence the study of pure Shiñ-tau cannot be successfully prosecuted at first hand, without a previous acquaintance with ancient forms of the language, and the result has a natural tendency towards a combined devotion to the two subjects, which is explanatory of the wide meaning of the term *Koku-gaku*, 'national learning,' sometime erroneously used to signify the study of poetry alone.

This notice of Mabuchi's writings is unavoidably deficient, owing to the difficulty of procuring copies of his works in the book-shops. Even the public library, recently removed to Asakusa, does not posses three volumes by this author which relate to the Ko-zhi-ki, and it is much to be regretted that the means should therefore be wanting in order to form an estimate of what he accomplished towards the elucidation of this most important and ancient Shiñ-tau monument.

III.

The mantle of Mabuchi fell upon the shoulders of Motowori Norinaga. This remarkable scholar and critic was born in 1730 at Matsuzaka in Ise, a town belonging to the Prince of Ki-shiu. At the age of ten years he

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lost his [18] father, and his mother was left in straitened circumstances. Motowori displayed an ardent taste for learning from his earliest childhood, and read every book, Chinese or Japanese, which came in his way. In 1752 he went to Kiyau-to, where he studied Chinese under Hori Kei-zañ and medicine under Takegaha Hofu-gañ, in accordance with his mother's wish that he should become a doctor. During his stay at the capital of the Mikado he became acquainted with the works of Kei-chiyuu, and read them with avidity. Previous to this his notions of poetry had been the same as those of the later versifiers, but from Kei-chiyuu he learnt the principles of correct style. In 1757 he returned to his birth-place and set up in practice as a children's physician.

Shortly after his return, a person who was passing through from Yedo lent him a copy of Mabuchi's work on the *makura kotoba*, which had just been published. A first perusal failed either to interest or convince him, but after repeated readings he was compelled to acknowledge the justice of the author's views, and their superiority over those of Kei-chiyuu. It was this book which inspired him with his love for the study of Japanese antiquity. In the year 1761 he had an opportunity of making the acquaintance of Mabuchi, when the conversation before quoted took place, and he continued to correspond with him and to profit by his lessons until the death of the elder scholar.[14]

The *Ko-zhi-ki Deñ*, which is an edition of the Ko-zhi-ki with an elaborate commentary, unquestionably his greatest work, was commenced in 1764, but the first part, which contains the commentary on the first book of the *Ko-zhi-ki*, was not completed until 1786. It must have at once established his reputation, and one of his biographers states that his fame drew nearly five hundred students from all parts of the country. The second part was finished in 1792. Three years later he was invited to Wakayama by the Prince of Ki-shiu, for whose sake he refused a pension of 800 *koku* [19] annually, which had been offered to him by another *dai-miyau*. The concluding part of the commentary was completed in 1796. The printing of the work was begun in 1789 and finished in 1822.

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[14] Tamagatsuma, vol. ii., p. 35, et infra.

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In 1801, at the request of a number of his admirers, he again visited Kiyau-to, where crowds flocked together to hear his lectures. The princes of the blood and many of the Court nobles sought instruction from him in matters relating to the early history of Japan. He died in the autumn of the same year, and was buried in a tomb which he had previously caused to be constructed at the monastery of Meuraku-zhi near Matsuzaka.

This seems a fitting place in which to give some account of the earliest extant historical records of the Japanese, and of those of which only brief notices have been preserved, taking for our authority the first volume of the *Ko-zhi-ki Deñ*.

The *Ni-hoñ-gi* states that in the year 403 (4th of Ri-chiyuu Teñ-wau) "historiographers were appointed for the first time to all the provinces, to record words and events," from which it may be inferred that such officials had existed at the Court before that date. The latter probably also had records of what was known of the earlier ages, which would account for the existence of numerous independent chronicles, such as are quoted in the *Ni-hoñ-gi*, especially in the first two books called the *Zhiñ-dai-no-maki*. The *Ni-hoñ-gi* also says that in the year 620 (28th of the Empress Suwi-ko Teñ-wau) Shiyau-toku Tai-shi and Soga no Umako [began to] compile by their joint efforts "A Record of the Mikado, a Record of the Country, and records of the *Omi*, *Murazhi*, *Tomo-no-miyatsuko*, *kuni no miyatsuko*, of the chiefs of the Mikado's followers, and of the people." This is the first mention of any records of the court. Teñ-mu Teñ-wau also commanded Prince Kahashima and eleven others in 681 to compile a history of the Mikados and an account of ancient matters. Neither of these collections has been preserved. In the 9th month of the year 711 the Empress Geñ-miyau Teñ-wau commanded the minister Yasumaro to commit the [20] Ko-zhi-ki to writing, and he presented it in a finished state in the first month of the following year, as is stated in the preface. This is therefore the earliest of the extant records. The Shiyoku-Ni-hoñ-gi says that the Ni-hoñ-gi was completed in the year 720, the 6th of the Empress Geñ-shiyau Teñ-wau, and it so far superseded the Ko-zhi-ki that the latter was almost forgotten. The cause of this was no doubt the general adoption of Chinese ideas, and the consequent preference of a work written in Chinese style to one of

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which the chief object was to preserve the form and spirit of Japanese antiquity. In 714 Kiyohito and Fujimaro were instructed to prepare a national history, but either they never completed the work at all, or it must have been looked on as a failure, for no further mention of it occurs anywhere.

The preface to the Ko-zhi-ki is the only authority for the accepted account of its origin. The Emperor Teñ-mu, at what portion of his reign is not mentioned, lamenting that the records possessed by the chief families contained many errors, resolved to take steps to preserve the true traditions from oblivion. He therefore had the records carefully examined, compared and weeded of their faults. There happened to be in his household a person of marvellous memory named Hiyeda no Are, who could repeat without a mistake the contents of any document he had ever seen, and never forgot anything that he heard. Teñ-mu Teñ-wau took the pains to instruct this person in the genuine traditions and 'old language of former ages,' and to make him repeat them until he had the whole by heart. "Before the undertaking was completed," which probably means before it could be committed to writing, the Emperor died, and for twenty-five years Are's memory was the sole depository of what afterwards received the title of *Ko-zhi-ki* or *Furu-koto-bumi*, as it is read by Motowori. At the end of this interval the Empress Geñ-miyau ordered Yasumaro to write it down [21] from the mouth of Are, which accounts for the completion of the manuscript in so short a time as four months and a half. Are's age at this date is not stated, but as he was twenty-eight years of age some time in the reign of Teñ-mu Teñ-wau, it could not possibly have been more than sixty-eight, while taking into account the previous order of Teñ-mu Teñ-wau in 681 for the compilation of a history, and the statement that he was engaged on the composition of the Ko-zhi-ki at the time of his death in 686, it would not be unreasonable to conclude that it belongs to about the last year of his reign, in which case Are was only fifty-three in 711.[15]

Apart from the fact that all European writers who have dealt with Shiñ-tau obtained their information from natives who were acquainted

[15] Hirata in his Ko-shi Chiyou, vol. i., gives reasons for supposing that Are was a woman, and that the compilation of a history attributed to the year 681 and the project of the Ko-zhi-ki were identical.

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with its impure forms alone, another source of error has been the too ready recognition of the Ni-hoñ-gi as the only authority for the native cosmogony and the ancient legends. It is not difficult, however, by the aid of a comparison between the Ni-hoñ-gi and the Ko-zhi-ki, to show that the former contains numerous traces of direct Chinese influence, and this is also what we should be led to expect from the fact of its having been composed in a language which is intended to represent the Chinese idiom as nearly as possible, while the Ko-zhi-ki is to a very large extent pure Japanese. Motowori has devoted several pages to the discussion of the book in question, and I think that it will be useful to take note of his observations.

'The very commencement of the Ni-hoñ-gi affords an example. Its first words are, "Anciently, before heaven and earth separated and the Negative and Positive Essences were parted, chaos was like a fowl's egg; and subsequently deity came into existence in the midst thereof." It then proceeds to state, "now it is said that in the beginning of heaven and earth, the soil floated about like a fish floating on the surface of water." This latter passage is the real Japanese account of the beginning of the world, and what precedes the words "Now it is said" is an addition taken from Chinese books.

'[22] In the next passage the existence of the first three male deities is attributed to the working of the Heavenly Mode by itself, and the production of four pairs of male and female deities to the joint working of the Heavenly and Earthly Modes. The Negative and Positive Essences, and the Heavenly and Earthly Modes were philosophic terms utterly unknown to the ancient Japanese, and are the inventions of ignorant men, who instead of accepting with faith the true traditions which have been handed down from the beginning of time, endeavour to discover explanations for what man with his limited intelligence can never comprehend. The deities referred to as having been produced by the working of the Heavenly and Earthly Modes, came into existence by the spirits of Takami-musubi no kami and Kami-musubi no kami. What the process was is beyond our ken; we have only to accept the fact. To call Izanagi no kami the "Positive Deity," and Izanami no kami "Negative Deity," as the Ni-hoñ-gi does, is to make use of terms which are entirely foreign to the Japanese language, which

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would have called them the "Male Deity" and "Female Deity." The effect of the Chinese phraseology is to cause men to believe that Izanagi no kami and Izanami no kami are abstract principles, whereas they are living powers. A proof that the terms "Positive Essence" and "Negative Essence" were imported from abroad, if one were needed, lies in the fact that the sun-deity is female and the moon-deity male according to the ancient native traditions, which is in diametrical opposition to the Chinese theory, according to which the sun is Male or Positive and the moon Female or Negative. Most of the speeches in the Ni-hoñ-gi, attributed to Zhiñ-mu Teñ-wau, Suu-zhiñ Teñ-wau and other ancient Mikados, contain passages which in their meaning and form are wholly Chinese, and cannot therefore be regarded as otherwise than fictitious. The Shiyoku-Ni-hoñ-gi contains speeches of the Mikados in both Chinese and native style, and if the speeches made in the 8th century contained so few traces of Chinese expression, it is pretty certain that those which were spoken [23] fourteen centuries older must have been purely Japanese. Zhiñ-mu Teñ-wau is represented as making use of such expressions as the following: "It is the part of a good general not to be haughty after conquering in battle," and, "I am the descendant of the sun-deity, and to march in the sun's face to conquer barbarians is contrary to Heaven's way," and, "Relying on the prestige of supreme Heaven, the evil horde has been cut to pieces"; in all of which the true Chinese ring is clearly heard. All reference to Heaven as an intelligent acting power is of Chinese origin, while in Japan heaven is merely the region where the heavenly gods have their abode. In the same way the allusions to eating beef in the Book of Zhiñ-mu, to divination by means of a tortoise's shell in the Book of Suu-zhiñ, and to the use of such weapons as battle-axes in the Book of Kei-kau, are borrowed from the Chinese, as is also the title of *Kuwau-tai-kou*, applied to the consort of Suwi-zei (B.C. 581-549 ?).' Motowori has by no means exhausted his criticisms upon the Ni-hoñ-gi, but is of opinion that he has said enough to show that it must be read with careful discrimination.

There is another book, of considerable age, which professes to give an original account of the divine age and of the early history down to Suwi-ko Teñ-wau (593-628). It is called the *Ku-zhi-ki*, and its author-

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ship is attributed to Shiyau-toku Tai-shi and Soga no Umako, and the preface by the latter states that it was completed in 622; it purports, in fact, to be the non-extant compilation already mentioned. Motowori condemns it as a forgery, compiled at a much later date, chiefly from the *Ko-zhi-hi* and *Ni-hoñ-gi*. It further contains passages from the *Ko-go-zhifu-wi*, composed in 807, and even mentions Saga Teñ-wau, who reigned as late as 810-823. Parts of it, however, seem to be based upon other sources than those above mentioned, and are of considerable value.

Motowori speaks of two editions of the Ko-zhi-ki which were in existence when he commenced his own. One which was printed in the period Kuwañ-yei (1624-1644), contains many omissions, erroneous readings, and numerous [24] faults in the *kana* transcription. The second was published later in the same century by Deguchi Nobuyoshi, who corrected most of the omissions and errors of the older edition, but took upon himself to make some unnecessary alterations in the text, thus diminishing to a considerable extent the value of his work. Besides these two printed editions Motowori obtained after much search an old manuscript copy, unfortunately disfigured by a multitude of mistakes, a copy of a manuscript with insertions by Nobuyoshi, an old copy belonging to a Kiyau-to resident named Murawi, and a copy of an ancient manuscript belonging to the monastery of Shiñ-puku-zhi at Nagoya in Wohari, all more or less incorrect, but useful for comparison.

The *Ko-zhi-ki Deñ* consists of forty-four large volumes of clear print, of which two are devoted to prolegomena, three to indexes arranged chronologically and alphabetically, and one contains a tract on the Cosmogony by Hatori Nakatsune, one of Motowori's pupils.

The earliest work of Motowori upon Shiñ-tau was the tract entitled *Nahobi no Mitama*, or the "Spirit of Straightening," which forms part of the first volume of the Ko-zhi-ki Deñ, and was written in the year 1771, about seven years after the commentary was commenced. It may be summarized as follows:

'Japan is the country which gave birth to the goddess of the Sun, Amaterasu-oho-mi-kami, which fact proves its superiority over all other countries which also enjoy her favours. The goddess, having endowed her grandson Ninigi no Mikoto with the three sacred treasures, proclaimed

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him sovereign of Japan for ever and ever. His descendants shall continue to rule it as long as the heavens and earth endure. Being invested with this complete authority, all the gods under heaven and all mankind submitted to him, with the exception of a few wretches who were quickly subdued.

'To the end of time each Mikado is the goddess' son. His mind is in perfect harmony of thought and feeling with hers. He does not seek out new inventions, but rules in accordance with precedents which date from the age of [25] the gods, and if he is ever in doubt, he has resort to divination, which reveals to him the mind of the great goddess. In this way the age of the gods and the present age are not two ages, but one, for not only the Mikado, but his Ministers and people also, act up to the tradition of the divine age. Hence, in ancient times the idea of *michi* or way (ethics) was never broached. The word was only applied to ordinary thoroughfares, and its application to systems of philosophy, government, morals, religion and so forth, is a foreign notion.

'As foreign countries (China and India, particularly the former) are not the special domain of the sun-goddess, they have no permanent rulers, and evil spirits, having found a field of action, have corrupted mankind. In those countries any bad man who could manage to seize on the power became a sovereign. Those who had the upper hand were constantly scheming to maintain their positions, while their inferiors were as constantly on the watch for opportunities to oust them. The most powerful and cunning of these rulers succeeded in taming their subjects, and having secured their position, became an example for others to imitate. In China the name of *Sei-zhiñ* (translated "Holy Men" by Meadows) has been given to these men. But it is an error to look upon these so-called Holy Men as in themselves supernatural and good beings, as superior to the rest of the world as are the gods. The principles which they established are called *michi* (ethics), and may be reduced to two simple rules, namely to take other people's territory, and to keep fast hold of it.

'The Chinese "Holy Men" also invented the "Book of Changes" (*Yeki*, or I-king), by which they pretended to discover the workings of the universe, a vain attempt, since it is impossible for man with his limited intelligence to find out the principles which govern the acts of

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the gods. In imitation of them the Chinese nation has since given itself up to philosophizing, to which are to be attributed its constant internal dissensions. When things go right of themselves it is best to leave them alone. In ancient times, although there was no prosy system of [26] doctrine in Japan, there were no popular disturbances, and the empire was peacefully ruled. It is because the Japanese were truly moral in their practice that they required no theory of morals, and the fuss made by the Chinese about theoretical morals is owing to their laxity in practice. It is not wonderful that students of Chinese literature should despise their own country for being without a system of morals, but that Japanese who were acquainted with their own ancient literature should have pretended that Japan also had such a system, simply out of a feeling of envy, is ridiculous.

'When Chinese literature was imported into Japan, the people adopted many Chinese ideas, laws, customs and practices, which they so mixed up with their own that it became necessary to adopt a special name for the ancient native customs, which were in consequence called *Kami no michi* or *Shiñ-tau*, the word *michi* being applied in the same sense as the Chinese *tau* (*tao*), and *Kami* because of their divine origin. These native customs only survived in the ceremonies with which the native gods are worshipped.

'Every event in the universe is the act of the gods. They direct the changes of the seasons, the wind and the rain, the good and bad fortune of states and individual men. Some of the gods are good, others bad, and their acts partake of their own natures. Buddhists attribute events to "retribution" (*iñ-guwa*), while the Chinese ascribe them to the "decree of heaven" (*teñ-mei* or *t'ien-ming*). This latter is a phrase invented by the so-called "Holy Men" to justify murdering sovereigns and seizing their dominions. As neither heaven nor earth have minds, they cannot issue decrees. If heaven really could issue decrees it would certainly protect the good rulers and take care to prevent bad men from seizing the power, and in general, while the good would prosper, the bad would suffer misfortune. But in reality we find many instances of the reverse.

'Whenever anything goes wrong in the world it is to be attributed to the action of the evil gods called *Magatsubi no kami* (gods of crooked-

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ness) whose power is so great [27] that the sun-goddess and the creator-god are sometimes unable to restrain them; much less are human beings able to resist their influence. The prosperity of the wicked and the misfortunes of the good, which seem opposed to ordinary justice, are their doing. The Chinese, not possessing the traditions of the divine age, were ignorant of this truth, and were driven to invent the theory of "Heaven's decrees."

'The eternal endurance of the dynasty of the Mikados is a complete proof that the 'way' called *Kami no michi* or *Shiñ-tau* infinitely surpasses the systems of all other countries.

'The "Holy Men" of China were merely successful rebels. The Mikado is the sovereign appointed by the pair of deities, Izanagi and Izanami, who created this country. The Sun-goddess never said, 'Disobey the Mikado if he be bad,' and therefore, whether he be good or bad, no one attempts to deprive him of his authority. He is the immovable ruler who must endure to the end of time, as long as the sun and moon continue to shine. In ancient language the Mikado was called a god, and that is his real character. Duty therefore consists in obeying him implicitly, without questioning his acts. During the middle ages such men as Hou-deu Yoshitoki, Hou-deu Yasutoki, Ashikaga Taka-uji and others violated this duty (*michi*), and took up arms against him. Their disobedience to the Mikado is attributable to the influence of Chinese learning.

'This "way" was established by Izanagi and Izanami, and delivered by them to the Sun-goddess, who handed it down, and this is why it is called the "way of the gods." The nature of this "way" is to be learnt by studying the *Ko-zhi-ki* and ancient writings, but mankind have been turned aside from it by the Spirits of Crookedness to Buddhism and Chinese philosophy.

'The various doctrines taught under the name of *shiñ-tau* are without authority.

'Human beings having been produced by the spirit of the two Creative Deities, are naturally endowed with the [28] knowledge of what they ought to do and what they ought to refrain from. It is unnecessary for them to trouble their heads with systems of morality. If a system of morals were necessary, men would be in-

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ferior to animals, all of whom are endowed with the knowledge of what they ought to do, only in an inferior degree to men. If what the Chinese call Benevolence (*Zhiñ*), Righteousness (*Gi*), Propriety (*Rei*), Retiringness (*Zhiyau*), Filial Piety (*Kau*), Brotherly Love (*T'ei*), Fidelity (*Chiyuu*) and Truth (*Shiñ*) really constituted the duty of man, they would be so recognized and practised without any teaching, but as they were invented by the so-called "Holy Men" as instruments for ruling a viciously-inclined population, it became necessary to insist on more than the actual duty of man. Consequently, although plenty of men profess these doctrines, the number of those who practise them is very small. Violations of this teaching were attributed to human lusts. As human lusts are a part of man's nature, they must be a part of the harmony of the universe, and cannot be wrong according to the Chinese theory. It was the vicious nature of the Chinese that necessitated such strict rules, as for instance that persons descended from a common ancestor, no matter how distantly related, should not inter-marry. These rules not being founded on the harmony of the universe, were not in accordance with human feelings, and were therefore seldom obeyed.

'In ancient times Japanese refrained only from inter-marriage among children of the same mother,[16] but the distance between noble and mean was duly preserved. Thus the country was spontaneously well-governed, in accordance with the "way" established by the gods.

'Just as the Mikado worshipped the gods of heaven and earth, so his people prayed to the good gods in order to obtain blessings, and performed rites in honour of the bad gods, in order to avert their displeasure. If they [29] committed crimes or defiled themselves, they employed the usual methods of purification taught them by their own hearts. As there are bad as well as good gods, it is necessary to propitiate them with offerings of agreeable food, playing the harp, blowing the flute, singing and dancing and whatever else is likely to put them in a good humour.

'It has been asked whether the *kami no michi* is not the same as the

[16] This was allowed among the Jews and by Solon (v. Lubbock's Origin of Civilization, p. 124). It was probably the result of polygamy. Although a distinction is made between the wife and concubines at the present day, that is probably of Chinese origin, for in more ancient times they were classed together as 'women.'

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Taoism of Laotzŭ. Laotzŭ hated the vain conceits of the Chinese scholars, and honoured naturalness, from which a resemblance may be argued; but as he was born in a dirty country not under the special protection of the Sun-goddess, he had only heard the theories of the succession of so-called Holy Men, and what he believed to be naturalness was simply what they called natural. He did not know that the gods are the authors of every human action, and this ignorance constituted a cause of radical difference.

'To have acquired the knowledge that there is no *michi* (ethics) to be learnt and practised is really to have learnt to practise the 'way' of the gods.'

This attack on the current Chinese philosophy was resented by a scholar named Ichikaha Tatsumaro, who in a pamphlet entitled Magano-hire begins by saying: "A certain man having abandoned himself to the study of the Ko-zhi-ki, Ni-hoñ-gi, Mañ-yefu-shifu and other books of the kind, until he had thoroughly masticated the old fables about which later ages can know nothing, and acquired an extensive acquaintance with them, the modern verse-makers have sounded his praises as a great teacher. It seems however that he had fancied the "naturalness" expounded by Laotzŭ to be a good thing, and he has violently abused the Holy Men. I have now undertaken to refute him."

Ichikaha starts by laying down the principle that 'unwritten traditions can never be accepted with implicit belief on account of the difficulties which stand in the way of their being handed down correctly, and the most incredible stories are those which have the best chance of being preserved. [30] Now, even allowing that the Chinese system of writing was introduced in the reign of Ou-zhiñ Teñ-wau, the documents which Hiyeda no Are committed to memory must have been produced after that time, and for the period of about a thousand years which is calculated to have elapsed between Zhiñ-mu and Ou-zhiñ and the immense period called the "age of the gods" which preceded Zhiñ-mu's reign, no written records can have existed at all, since there was no native system of writing in use in ancient times.[17] The stories told us about the earlier ages must have been invented by the Mikados. The

[17] Hirata Atsutane has made an attempt to prove the genuine character of the *zhiñ-dai no mo-zhi*, which will be noticed further on.

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name of Amaterasu is probably a posthumous title conferred at a later period. If the sun-goddess is the real sun in heaven, it must have been quite dark before she was born; and yet it is stated that before she was born there were trees and plants, clothing, weapons, boats and buildings. If all these things existed before her birth, it seems probable that both sun and moon likewise preceded that event. It is curious that the stars are not mentioned in the *Zhiñ-dai-no-maki*. To say that the sun was born in Japan is a fiction which was probably invented by the earlier Mikados in order to support the assertion that this country is the root and all other countries only branches. The gods in heaven make no difference between different races of mankind, who are formed into separate nations by the seas and mountain ranges which divide them off from each other, and the sun shines equally over all.

'During the thousand years or so which are said to have elapsed between the reigns of Zhiñ-mu and Ou-zhiñ there were no written characters, and no cyclical signs by which time could be measured and its lapse recorded. Men knew that it was spring by the blossoming of the flowers, and that autumn had arrived by the leaves falling from the trees. The statement that a thousand years did actually elapse cannot be accepted with confidence.

'The Japanese word *kami* was simply a title of honour, but in consequence of its having been used to translate [31] the Chinese character *shiñ* (*shên*), a meaning has come to be attached to it which it did not originally possess. The ancestors of the Mikados were not gods but men, and were no doubt worthy to be reverenced for their virtues, but their acts were not miraculous or supernatural. If the ancestors of living men were not human beings, they are more likely to have been birds or beasts than gods.'

This is but a short summary of fifty-four pages of close print, a great part of which is occupied with the defence of the "Holy Men" and the Chinese philosophy. Some of the arguments remind us somewhat of the early deistical writers of Europe who maintained that religion was invented by priests with interested motives. It is not improbable that the author was indebted in some measure to the *Ko-shi-tsuu* of Ara-wi Haku-seki, a rationalistic work composed about the year 1716.

Motowori replied to Ichikaha in a book called Kuzuhana, written

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in 1780. In reply to the accusation of being an admirer of Laotzŭ, he says that it by no means follows that because that philosopher attacked the "Holy Men," all others who attacked them must be his followers. It is quite possible to have a bad opinion of both Taoism and Confucianism. To maintain the contrary is to resemble certain people who seeing a party of gamblers arrive first at the scene of a fire, and work hard to put it out, believed some honest villagers who came later, and aided in the good work, to be gamblers also. The teaching of the "Holy Men" is like a fire burning a house, Laotzŭ is the gambler who first tried to extinguish it, and Motowori's own work the Nahobi no Mitama is the honest villager.

With regard to the first argument put forth by Ichikaha, he argues that 'before the invention of writing the want of it could not have been felt in the same way as it would, if we were now deprived of a medium of recording facts on which for ages past we have been accustomed to depend almost entirely. It is an acknowledged fact, however, that we still find ourselves obliged to have recourse to oral language in matters of delicacy or detail which [82] cannot be conveniently committed to writing, and it is probable that the ancient traditions, which were preserved by exercise of memory, have for this very reason come down to us in greater detail than if they had been recorded in documents. Besides, men must have had much stronger memories in the days before they acquired the habit of trusting to written characters for facts which they wished to remember, as is shown to the present day in the case of the illiterate, who have to depend on memory alone.

'The facts that the sacred mirror bestowed by Amaterasu upon Ninigi no Mikoto is still preserved at the Nai-kuu temple in Ise; that the sword "Grass-cutter" is to this day at the temple of Atsuta in Wohari; that remains which date from the divine age are even now to be found in various provinces; that the sepulchres of the Mikados from Zhiñ-mu downwards exist in parts of the Ki-nai; that numerous relics of the divine age remain in the possession of the Court, and that the Nakatomi, Imibe and Ohotomo families have transmitted the functions which they exercised in the age of the gods in unbroken succession to their descendants of later times, vindicate beyond the possibility of a doubt the truth of the old traditions.

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'In reply to the argument that if Amaterasu and the sun be identical, there must have been perpetual night before she was born, which is inconsistent with the fact of trees and plants being in existence before her birth; and that therefore the sun must have been previously hanging in the sky, he reiterates the statement that the goddess and the sun are one and the same. For although she will continue to shine as long as heaven and earth endure, she was born in Japan, and her descendants to this day rule over the empire. The difficulty of reconciling the statements that the world was plunged into darkness when she retired into the cavern, and that darkness did not exist before she was born is one that would strike even a child's intelligence. The critic need not make so much fuss about this point, as if it were entirely a new discovery of his own. The very inconsistency is [38] the proof of the authenticity of the record, for who would have gone out of his way to invent a story apparently so ridiculous and incredible. The acts of the gods are not to be explained by ordinary principles. Man's intelligence is limited, and there are many things which transcend it.

'If we reflect that Izanagi had to kindle a light when he visited the nether world, because of the darkness which reigned there, while the opposite was the case in the upper world, although the sun-goddess had not yet come into being, it will be clear that there was some cause, which we cannot explain, for the darkness of the nether world, and for light existing on the earth. Some principle was evidently at work with which we are unacquainted. After the birth of the sun-goddess, no light could be obtained except from her brightness,[18] as she had been appointed to illuminate the space between heaven and earth, which accounts for night covering the earth when she went into the cave.

'Many other miracles occurred in the age of the gods, the truth of which was not disputed until men were taught by Chinese philosophy to analyse the acts of the gods by the aid of their own feeble intelligence. The reason assigned for disbelieving in miracles is that they cannot be

[18] The parallel between the creation of light and the vegetable world before the sun, as given in the I. Chapter of Genesis and the Japanese account is very curious; it might be useful to those who think that the Japanese are the descendants of the lost tribes.

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explained, but in fact although the age of the gods has passed away, wondrous miracles surround us on all sides. For instance, is the earth suspended in space or does it rest upon something else? If it be said that the earth rests upon something else, then what is it that supports that something else? According to one Chinese theory the earth is a globe, suspended in space with the heavens revolving round it. But even if we suppose the heavens to be full of air, no ordinary principles will account for the land and sea being suspended in space without moving. The explanation offered is as miraculous as the supposition [84] previously made. It seems plausible enough to say that the heavens are merely air, and are without any definite form. If this be true there is nothing but air outside the earth, and this air must be either infinite or finite in extent. If it is infinite in extent, we cannot fix on any point as its centre, so that it is impossible to understand why the earth should be at rest; for if it be not in the centre it cannot be at rest. If it be finite, what causes the air to condense in one particular spot, and what position shall we assign to it? In any case, all these things are miraculous and strange. How absurd to take these miracles for granted, and at the same time to disbelieve in the wonders of the divine age. Think again of the human body. Seeing with the eyes, hearing with the ears, speaking with the mouth, walking on the feet and performing all manner of acts with the hands are strange things; so also the flight of birds and insects through the air, the blossoming of plants and trees, the ripening of their seeds and fruits are strange; and the strangest of all is the transformation of the fox and *tanuki* into human form. If rats, weasels and certain birds can see in the dark, why should the gods not have been endowed with a similar faculty?

In reply to an observation of Ichikaha's that "to obey and revere a sovereign, no matter whether he be good or bad, is the part of women," after an argument intended to prove that it is not safe to allow subjects to criticise the acts of their prince, Motowori says: "Thus, even if the prince be bad, to venerate, respect and obey him in all things, though it may seem like a woman's duty, is the right way of action, which does not allow of the obligations of a subject towards his prince ever being violated."

'All the moral ideas which man requires are implanted in his bosom

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by the gods, and are of the same nature as the instincts which impel him to eat when he is hungry and to drink when he is thirsty. But the morals inculcated by the Chinese philosophers are inventions, and contain something more in addition to natural morality.

'[35] The facts that many of the gods are invisible now, and have never been visible, furnish no argument against their existence. Existences can be made known to us by other senses than those of sight, such as odours and sound; while the wind,[19] which is neither seen, heard nor smelt, is recognized by the impression which it makes on our bodies. The gods of the divine age are indeed no longer visible, but in that age they were visible. The sun-goddess must be excepted, for she is visible to all men even now. And as for the gods whose existence was never perceived by the eyes of men, they are known by their special modes of action upon men. All our knowledge comes to us in fact by our senses. We thus know that fire is hot and water cold, but of the nature of heat and cold we can discover nothing.

'There is a tradition in China that the left and right eyes of Puanku became the sun and moon, which is, however, usually discredited because the natives of that country, being admirers of false knowledge, assign the origin of these two luminaries to the Positive and Negative Essences. The real truth is that the sun and moon were produced when Izanagi no kami washed his eyes after returning from his search after Izanami no kami in the nether world. The tradition has evidently travelled to China, and assumed the perverted form in which we find it there, during the lapse of ages.'

Motowori disclaims any intention of endeavouring to resuscitate pure Shiñ-tau so far as to make it the rule of life in the present day. His only object is to present the age of the gods in its real form. All that comes to pass in the world, whether good or bad in its nature, is the act of the gods, and men have generally little influence over the course of events. To insist on practising the ancient "way of the gods," in opposition to the customs of the present age, would be rebellion against that "way," and equivalent to trying to excel it. If men in their daily practice obey the laws made from time to time by the authorities, and act

[19] He probably means 'air.'

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in accordance with general custom, [86] they are practising *Shiñ-tau*. It was with this reservation that he vindicated the ancient practice of intermarriage among children of the same father by different mothers, and not in order to recommend its revival.

The *Keñ-kiyau-zhiñ*, or "The madman thrust into an iron collar," is likewise a controversial work in reply to the *Shiyou-kou-hatsu*, which was apparently an attack upon the ancient records. The latter is a rare book, and we have not been able to procure a copy, but to judge from the short quotations contained in the *Keñ-kiyau-zhiñ* the points in dispute have no direct bearing upon the essential principles of Shiñ-tau.

From the central truth that the Mikado is the direct descendant of the gods, the tenet that Japan ranks far above all other countries is a natural consequence. No other nation is entitled to equality with her, and all are bound to do homage to the Japanese Sovereign and pay tribute to him. These truths are enlarged upon in great detail by Motowori in a word entitled Giyo-zhiyuu Gai-geñ, "Indignant words about Ruling the Barbarians," written in 1778. It takes the form of a review of the relations between Japan and other countries from the earliest period down to the time of Iheyasu, as recorded in the histories of both countries, but does not touch upon the subject of the intercourse with Christian states in the 16th and 17th centuries, probably because Christianity was a forbidden question.

'That on the earliest occasion when the Mikado exchanged letters and envoys with the Chinese Sovereign, the first step should have been taken by the former is a source of deep annoyance to Motowori. This deplorable event occurred in the year 707 under the Empress Suwi-ko, when an envoy was sent to China to fetch a Buddhist Sûtra which Shiyau-toku Tai-shi remembered to have possessed during a previous state of existence, when he was studying the sacred mysteries in that country. It is true that the Chinese histories contain notices of tribute bearers from Japan much earlier than this date, but these envoys, whatever may have been their character, [87] certainly were not commissioned by the sovereign. As for their paying tribute, the statement is due to the inordinate vanity of the Chinese, who fancy themselves superior to all surrounding nations, whereas they are no better than barbarians themselves, and are bound to acknowledge the supremacy of Japan. The

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Ni-hoñ-gi speaks also of the despatch of Japanese to China in 464 and 468, but Motowori thinks that they were not accredited to any Chinese sovereign. One of the Chinese histories has an account of the mission sent by Suwi-ko, and gives what purports to be a letter from that Empress, in which appears the famous phrase, "The Teñ-shi (son of Heaven) of the place where the sun rises sends a letter to the Teñ-shi of the place where the sun sets." 'If the Empress Suwi-ko really sent such a letter, she treated the Chinese sovereign with far too much civility, and if she had addressed him with some such phrase as, "The Heavenly Emperor notifies (*chiyoku*) to the king of Go (Wu)," he ought to have been filled with gratitude, instead of which he is represented by the Chinese historiographer as having been offended at being treated as an equal. But the truth is that Suwi-ko Teñ-wau wanted to get something from him, and therefore condescended to flatter his vanity.' The Ni-hoñ-gi relates that this Empress showered civilities upon the envoy who brought the Chinese Emperor's answer, but Motowori does not care to dwell on this fact.

Uninterrupted intercourse seems to have continued between the two Courts for about two centuries, and then to have ceased during a period of about thirty years. 'It was unworthy of Japan to enter into relations with a base barbarian state, whatever might be the benefits which she expected to obtain. It resulted in too many cases in the shipwreck of the vessels and the profitless deaths of the envoys by drowning. Had the Chinese ruler paid due reverence to the Mikado as a being infinitely superior to himself, the objection would have been less.' After the end of the tenth century the Mikados appear to have ceased sending envoys to China, and Motowori remarks that "so long as Japan wanted anything from China, she [38] overlooked the insolent pretensions of the Chinese sovereigns, but now being no longer in a position to gain by the interchange of courtesies, she rejected all further overtures of friendship."

The failure of the expeditions sent against Japan by Kublai Khan and the Tai-kafu's conquest of Korea of course afford much matter for reflections of a gratifying nature, which are only clouded by the disgraceful conduct of the Shiyan-guñ Ashikaga Yoshi-mitsu, who in writing to the Ming sovereign addresses him as Your Majesty (*hei-ka*),

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and in one of his letters uses the title 'King' *(koku-wau)* in speaking of himself, of the Shiyau-guñ Yoshihisa, in sending envoys to ask for money (such sums as 50,000 and 100,000 strings of cash[20] at a time), and by the unfortunately obsequious language used by the Tai-kafu and some of his generals in writing to the Chinese officials about the negotiations for peace. 'But the responsibility in these last cases lay with the priests, who being the only men in those days with the slightest tincture of learning, had charge of the correspondence.'

The most remarkable point about this long tirade against China is that Japan was indebted to her for all the arts and sciences that make life better than nonentity, for a complete system of government and laws, and even for the very art of writing which enabled the writer to record his arrogant and spiteful feelings.

Of Motowori's other works relating to Shiñ-tau the most important are his commentaries on the *Oho-barahi no kotoba* (1795) and the *Idzumo Kuni-no-miyatsuko Kamuyogoto* (1793), the *Zhiñ-dai Udzu no Yama-kage*, which is a development of his criticisms on the first two books of the *Ni-hoñ-gi* called the *Zhiñ-dai no maki*, and the *Zhiñ-dai Shiyau-go* (1789). This last is a compilation from those parts of the *Ko-zhi-ki* and *Ni-hoñ-gi* which describe the age of the gods and certain other ancient books, written in the mixture of Chinese characters and *Hiragana* called *Kana-mazhiri*, with a few explanatory notes. [89] It is intended to give a clearer account of the ancient traditions than either of the original works on which it is based, by eliminating the Chinese order of characters, and substituting purely Japanese sentences. To these may be added the *Teñ-so to-zhiyau Beñ-beñ* (1767), a reply to two writers, one of whom had tried to prove that the capital of Amaterasu was at Nakatsu in Bu-zeñ, the other that it was in the province of Yamato, and the *Ise Ni-guu Sakitake no Beñ*, the object of which is to refute the heretical notion that Amaterasu is not the sun, and to show that the deity of the Ge-kuu, who is identified by some writers with Ame-no-mi-naka-nushi, by others with Kuni-no-toko-tachi, is in reality Uke-mochi no kami, the goddess of food.

The *Reki-teu Seu-shi kai*, in six volumes, published two years after his death, is of great value to the student of ancient Japanese history.

[20] The string of cash was probably worth about a dollar.

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It contains an amended text of all the *mi-koto-nori*, or Imperial messages, which are recorded in the *Shiyoku-Ni-hoñ-gi* during the period which elapsed from the abdication of Ji-dou Teñ-wau in 696, down to 791, the 10th year of Kuwañ-mu Teñ-wau. These messages were delivered on various occasions, such as the recognition of the heir-apparent, the abdication of the Sovereign, the creation of an Empress, the punishment of criminals of rank, the outbreak of rebellions, the granting of lands to distinguished subjects, and several were pronounced in connection with the execution of a new kind of dance by the Princess who afterwards became Kau-keñ Teñ-wau. Another was composed for a thanksgiving service for the discovery of gold in Japan, celebrated in 749 at the temple of Tou-dai-zhi in Nara, when the Empress Kau-keñ was present with her whole court, and worshipped the great image commonly called *Dai-butsu*. The style is in many cases pure Japanese, and these messages, together with the *norito* preserved in the *Yeñ-gi Shiki*, form the only native prose compositions which are of older date than the 9th century.

Like the other members of this Pure Shiñ-tau School, Motowori devoted a great deal of attention to the study of the [40] ancient language, and composed numerous works of great value in this department of learning. Mr. Aston has given the titles of several of these in the list appended to his Grammar of the Written Language, to which may be added the *Ko-kiñ-shifu Towokagami*, a commentary on the collection of poetry entitled *Ko-kiñ-shifu*, notes on the *Geñ-zhi Monogatari* under the title of *G.M. Tana no Wogushi*, the *Chi-mei Zhi-oñ Teñ-you-rei*, on the etymology of local names, the *Mañ-yefu Tama no Wo-goto* and *Mañ-yefu-shifu hai-kuñ*, and the *Uhi-yama-bumi*, a general introduction to Japanese studies. The *Tama-kushige* is a highly interesting work on the philosophy of government written in 1687, in which the abuses that were even then beginning to sap the foundations of the feudal system are laid bare with an unsparing hand. A summary of its contents might be of value to those who are interested in modern Japanese politics, but would be foreign to the scope of this paper.

Motowori's style, less ornate than that of Mabuchi, is clear and correct, though sometimes wanting in terseness, and his controversial writings give evidence of his logical powers in dealing with his own

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premises. He may be said almost to have created the modern literary Japanese language, and the influence of his example is seen even in the lighter literature of the present day. The violence of his prejudices in favour of everything native and antique is probably due to a reaction against the dominion of Chinese ideas and forms of expression, which at the time he thought and wrote bade fair to extinguish every trace of Japanese nationality. No author can be studied to such advantage by those who wish to acquire a mastery of written Japanese.

IV.

Hirata Atsutane, the fourth in chronological order of those scholars whom I have named as the founders of this school, was born in 1776 at the town of Kubota in Deha, the capital of that remote district in the north of Japan commonly called Akita. His father was Ohowada Seibei, a *samurai* of the Satake family, who traced back his descent to the sun-goddess through Kuwañ-mu Teñ-wau, [41] the fiftieth *Mikado* from Zhiñ-mu, and enjoyed a hereditary pension of a hundred *koku* of rice. Atsutane was the fourth son of a family of eight children. At the age of eight he entered the school of a professor of Chinese named Nakayama Sei-ga, and three years later commenced the study of medicine under his uncle Ohowada Riu-geñ. Up to his twentieth year he chiefly devoted himself to Chinese studies, and practised fencing under various teachers, but he longed to distinguish himself in some way more worthy of his abilities, and in the beginning of 1795 he suddenly quitted his father's house, leaving a letter behind him bidding farewell to his relations. He had chosen the 8th of the month for his departure, apparently on account of the popular belief that a person who leaves home on that day never returns. With a *riyau* in his purse he started for Yedo, where, after his arrival, avoiding the society of his fellow-clansmen and friends, he sought on all sides for a virtuous and learned teacher. Sometimes he obtained employment as an under-teacher, and in his worst extremity was reduced to seeking a livelihood by manual labour. In this manner he passed four or five years, suffering great hardship and privation. In 1800, at the age of twenty-five, he became the adopted heir of Hirata Fujibei, a retainer of

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the *daimiyau* of Matsuyama in Bi-chiyuu, and took up his residence in the *yashiki* of Hoñda Shiu-ri on Kagura-zaka in Yedo.

It was in the following year that Atsutane first became acquainted with the writings of Motowori, and was seized with an enthusiastic love for the study of Japanese antiquity. In the seventh month he formally enrolled himself among Motowori's pupils, about two months before the death of the elder scholar. His first essay in the new branch of learning to which he had devoted himself was an attack upon the writings of Da-zai Shiyuñ-tai (b. 1680, d. 1747), in a book entitled *Ka-bau-shiyo*, which he wrote in 1808, and in the following year he began to take pupils. It was in 1804 that he drew up a table of Chinese characters relating to the practise of the five virtues. These he enumerates as Reverence, Righteousness, Benevolence, [42] Wisdom and Valour, and nineteen characters are included under each heading. It is a more curious than valuable production.

The *Ki-zhiñ Shiñ-roñ*, completed first in 1805 and revised for publication in 1820, is intended to prove that the ordinary Chinese philosophers have misunderstood the teachings of Confucius with regard to supernatural beings, and to show by quotations from the Confucian Analects and other writings that he believed in their actual existence. Hirata in this work refutes the opinions of Chinese and Japanese scholars with regard to the non-existence of gods, and demonstrates the correctness of the opposite view. We have not time to analyze the work more minutely, and have had recourse to the bibliographical list of Hirata's writings printed at the end of the *Nifu-gaku Moñ-dafu* for this brief notice of it.

In 1807 he resumed practice as a physician, and the study of medicine. During this year he commenced the compilation of the Chishima Shira-nami, or White Waves of the Kurile Islands, which contains an account of the incursions of the Russians under Davidoff and Chwostoff against the Japanese possessions in Sagalien and Itorup in the previous year. It was intended also to be a manual of the way to 'restrain barbarians' and of maritime defence. It is to be regretted that this interesting work still remains unprinted.

The year 1811 was an extremely fruitful one. Early in the spring he began to revise the lectures on Shiñ-tau, Chinese philosophy and

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Buddhism which during the two previous years he had delivered to his pupils, and produced in succession the *Ko-dau Tai-i*, Summary of the Ancient Way; *Zoku-Shiñ-tau Tai-i*, Summary of the Vulgar Shiñ-tau; *Kañ-gaku Tai-i*, Summary of Chinese Learning, the same as that which was afterwards published under the title of *Sai-zhiyaku Gai-roñ*; the *Butsu-dau Tai-i*, Summary of Buddhism, subsequently renamed *Go-dau Beñ*; *I-dau Tai-i*, Summary of the Medical Art, printed under the title of *Shidzu no Ihaya*; the *Ka-dau Tai-i*, Summary of the Art of Poetry, and the *Tama-dasuki*, which he [43] rewrote from beginning to end some years later. Of the works in this list the first, second and last are alone of interest to the student of Shiñ-tau, but as the *Zoku Shiñ-tau Tai-i* is a hostile criticism of the sects comprehended by the author under the name of vulgar Shiñ-tau I shall not ask my readers to go through a summary of its contents. It will be more useful to consider it on some future occasion in connection with the works of the writers against whom it is directed.

The Summary of the Ancient Way treats of the following subjects: firstly, the reason why the subject-matter of his teaching is called the Ancient Learning *(Ko-gaku)*; secondly, the origin of this study, with a brief account of those who founded it and spread it abroad in the world; thirdly, the foundations upon which it is based; fourthly, the age of the gods; fifthly, the reasons why the gods are entitled to the gratitude of mankind; sixthly, why Japan is "the country of the gods"; seventhly, how it is certain beyond a doubt that every Japanese is a descendant of the gods; eighthly, the uninterrupted continuance of the imperial line from the beginning of the world, together with proofs of the superiority of Japan over all other countries in the world, both materially and morally; ninthly, the truth that the Japanese, being natives of 'the country of the gods,' are born with a naturally perfect and true disposition, which from the most ancient times has been called *Yamato-damashihi* or *Yamato-gokoro*,[21] and tenthly, how the traditions of the Age of the Gods, and of their actions, appear to the ordinary man to be mysterious and difficult of belief; and the refutation of this error;—in the course of which exposition the real 'way' will be disclosed.

[21] *Yamato*, one of the old names of Japan; *tamashihi*, spirit; *kokoro*, heart.

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Japanese learning may be divided into several branches, firstly, the Way of the Gods; secondly, poetry; thirdly, law; fourthly, romances; fifthly, history; and sixthly, archæology. Under these there are subdivisions, such as the various schools of what is commonly called Shiñ-tau, [44] and two or three schools of poetry. Chinese learning also has many subdivisions, and in Buddhism there are the doctrines of the numerous sects, besides the Learning of the Heart,[22] which is an offshoot of Buddhism. Then we have astronomy and physical geography, the learning of the Hollanders, and medicine, which is divided into three schools, the ancient, the modern and the Dutch. Bnt Japanese learning is the chief of all these. A man passes for a good Chinese scholar if he has learnt to read the Four Books and the Five Classics, or, according to another enumeration, the Thirteen Classics, has run hastily through half a dozen other works, and can compose Chinese prose and what they have a trick of calling poetry. There is nothing very difficult in all this. The Buddhist priests have a much larger task. Their canon (which Hirata here says he has read) consists of some five thousand volumes, seven or eight horse-loads, a tenth part of which is far more than the sinologue has to study; and to make the work harder the priests have to study Chinese as well as their own religious books, or else they could not read the latter. And owing to the strange manner in which Buddhist and Chinese notions have been mixed up with Japanese learning (*Shiñ-tau*), the student of the latter must possess all the knowledge of the sinologue and the priest that he may be able to separate the wheat from the chaff, and he must know all the possible arguments which his opponents may have at their command in order to refute them. Besides, if a Japanese studies foreign learning he will be able to select whatever good things there are in it, and turn them to the service of his country. From this point of view Chinese, Indian and even Dutch studies may be looked upon as Japanese learning.

'In the first place it is necessary to state that the reason why this teaching is called the "study of the ancient way" is because it aims at explaining the facts which begin with the origin of heaven and earth,

[22] This is the form of doctrine taught in the *Kiu-wou Dau-wa*, *Shiñ-gaku Michi no Hanashi*, *Te-zhima Dau-wa* and similar works.

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by means of the ancient ways of thinking and the ancient tongue, [45] such as they were before the introduction of the Chinese and Buddhist "ways," and at demonstrating that in those facts is embodied the whole of the true "way."'

Having disposed of his first heading in this manner, Hirata proceeds to deal with the second, namely the founders of the school to which he himself belongs. A summary of what he has said about them in the second and ninth volumes of his *Tama-dasuki*, has already been given in the former part of this paper.

The foundations upon which the Ancient Learning is based are the writings in which the Imperial Court has recorded the facts of antiquity. Most people are wont to suppose that the only way to attain to a knowledge of right conduct is to read books full of precepts, but they labour under a mistake. Precept is far inferior to example, for it only arises in the absence of example, while it is unnecessary when example exists. As Laotzŭ says, "When the Great Way decayed, Humanity and Righteousness arose."[23] In order to spur on a warrior to valiant deeds, rather than show him a book which says, "When you go to battle strive to be first, do not lag behind others," show him a book in which are written the facts about ancient heroes who led the way, fought bravely and achieved renown. The facts will sink deeply into his heart, and he will say to himself, "When the occasion arises, I will distinguish myself like such an one of antiquity," but the mere exhortation will scarcely stir his emotions. The story of Ohoishi Kuranosuke and the forty-seven faithful retainers, who underwent a thousand hardships and perils in order to slay Kira Kaudzuke no suke, the enemy of their lord Asano Takumi no kami, will do far more to keep alive the flame of loyalty than any simple precepts about the duty of avenging a master. The ethical writings of the T'ang dynasty are full of the most admirable teachings of [46] this kind, but when we find that the authors were themselves guilty of murdering their sovereigns and of treason, their words lose all their effect.

[23] Taôtê-king, chap. xviii. Julien translates: Quand la grande voie eut déperi, on vit paraître l'humanité et la justice. That is, according to the commentator whom he follows, When the way decayed, the absence of affection and the existence of disobedience brought humanity and justice into prominence.

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As has already been said, the real principles of conduct are not to be taught by precept, and we must go to the books to find the facts from which the real ancient way is to be learnt. The most important of these is the Ko-zhi-ki. Most Japanese, including those who profess to be students of the way of the gods, hold the Ni-hoñ-shiyo-ki in great honour. Its first two books are printed separately under the title of *Zhiñ-dai-no-maki*, and the common teachers of Shiñ-tau have written various so-called commentaries thereon. They even assert that these books are the only authorities about the beginning of the world and the age of the gods. Motowori in the first volume of the Ko-zhi-ki Deñ pointed out the erroneousness of this opinion. Part of the cosmogony given in the Zhiñ-dai-no-maki can be actually traced to ancient Chinese writing, from which it has been taken almost word for word. But on the other hand the Ni-hoñ-shiyo-ki, or, as it should properly be called, the Ni-hoñ-gi, has great merits of its own, which ought not to be passed over. In addition to the main text of the first two books, it quotes a number of other parallel passages from documents then extant, which often throw much light on the received traditions of the divine age, and it gives much fuller details of the history of the Mikados from Zhiñ-mu Teñ-wau downwards than the Ko-zhi-ki does. When the ornamental Chinese phraseology has been eliminated there remains a great treasure of truth, and the Ni-hoñ-gi therefore does really deserve the first place among the sacred books.

It is most lamentable that so much ignorance should prevail as to the evidences of the two fundamental doctrines, that Japan is the country of the Gods and her inhabitants the descendants of the Gods. Between the Japanese people and the Chinese, Hindoos, Russians, Dutch, Siamese, Cambodians and other nations of the world there is a difference of kind, rather than of degree. It was not out of vain-glory that the inhabitants of this country called it the land of the gods (*Shiñ-koku*, [47] *kami no kuni*). The gods who created all countries belonged without exception to the Divine Age, and were all born in Japan, so that Japan is their native country, and all the world acknowledges the appropriateness of the title. The Koreans were the first to become acquainted with this truth, and from them it was gradually diffused through the globe, and accepted by every one.

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Before the origin of things there was Infinite space *(oho-sora)*; neither heaven nor earth, nor the sun, nor moon, nor anything else existed. In Infinite space were Ame-no-mi-naka-nushi no kami,[24] and next Taka-mi-musu-bi no kami and Kamu-mi-musu-bi no kami, by whose miraculous power a thing whose shape cannot be described in words came into existence in the midst of space. This thing floated (or, was suspended) in space like a cloud, without any support. From it came forth something sprouting like a horn, or like the young sprout of the rush called *kaya*; but as to its nature there is no tradition. It may however be conjectured that it was pure, translucent and bright, for it afterwards became the sun, and from the time when Ama-terasu-oho-mi kami became its ruler, the brightness of her august body has shone through it. As this thing grew upwards it widened out infinitely, just as a cloud rising from the top of a mountain looks like a rush sprouting, but afterwards becomes immensely extended. This is what in the Divine Age was called *Ama-tsu-kuni* (the kingdom of heaven), *Taka-ma-no-hara* (the high plain of heaven), and sometimes simply *Ame* (heaven). In a similar manner there grew downwards a something, which afterwards separated and became the moon. During the double process fourteen other gods came into being, of whom the last were Izanagi no kami and Izanami no kami. They are the parents of the deities of the sun and moon and the progenitors of all the other gods.

[48] As to the signification of the word *kami*;[25]—it is applied in the first place to all the *kami* of heaven and earth who are mentioned in the ancient records, as well as to their spirits which reside in the temples where they are worshipped. Further, not only human beings, but also birds, beasts, plants and trees, seas and mountains, and all other things whatsoever which possess powers of an extraordinary and eminent character, or deserve to be revered and dreaded, are called *kami*. Eminent

[24] The Lord of the Middle of Heaven. *Taka* and *kamu* are explained as honorifics; *mi* has the same force. *Musu* means to beget; this word enters into composition with *ko* and *me* to produce *musuko* and *musume*, son and daughter. *Bi* is the same as *hi*, an archaic word applied to whatever is wonderful, miraculous and ineffably worthy of honour, and to the sun *par excellence*.

[25] This passage is copied by Hirata almost word for word from vol. iii. of the Ko-zhi-ki Deñ, without any acknowledgment.

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does not mean solely worthy of honour, good or distinguished by great deeds, but is applied also to the *kami* who are to be dreaded on account of their evil character or miraculous nature. Amongst human beings who are at the same time *kami* are to be classed the successive Mikados, who in the Mañ-yefu-shifu and other ancient poetry are called *towo-tsu-kami* (distant gods) on account of their being far removed from ordinary men, as well as many other men, some who are revered as *kami* by the whole Empire, and those whose sphere is limited to a single province, department, village or family. The *kami* of the Divine Age were mostly human beings, who yet resembled *kami*, and that is why we give that name to the period in which they existed. Beside human beings, the thunder is called the 'sounding god' (*naru-kami*). The dragon, goblins (*teñ-gu*) and the fox are also *kami*, for they are likewise eminently miraculous and dreadful creatures. In the Ni-hoñ-gi and in the Mañ-yefu-shifu the tiger and the wolf[26] are spoken of as *kami*. Izanagi gave the name of Oho-kamu-dzu-mi no mikoto to the fruit of the peach-tree, and the jewels which he wore on his neck were called Mi-kura-tama no mikoto. In the *Zhiñ-dai-no-maki* and the *Oho-barahi no kotoba*, rocks, stumps of trees, leaves of plants and so forth are said to have spoken in the Divine age; these also were *kami*. There are many cases of the term being applied to seas and mountains. It was not a spirit that was meant, but the term was used directly of the particular sea or mountain; [49] of the sea on account of its depth and the difficulty of crossing it, of the mountain on account of its loftiness.[27]

Izanagi and Izanami, after descending by command of the Heavenly Gods upon Onogoro-zhima, begot the eight islands of Japan, namely,

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[26] *Oho-kami*, literally, great god.

[27] *Kami*, god, is evidently the same word as *kami* applied to a superior, as to a master by his servant or to the sovereign by his subjects, to the chief officer of a sub-department of the administration, and in ancient times to the governor of a province. Its primary meaning is 'that which is above,' and hence 'chief.' So that Izanagi no Oho kami would mean Great Chief Izanagi. *Mikoto*, which is a title applied to gods, and forms part of the word *Sumera-mikoto*, the ancient name of the sovereigns of Japan, is composed of the honorific *mi* and *koto*, word, and hence, thing. It might be rendered augustness, and Izanagi no mikoto would mean His Augustness Izanagi.

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what are now called Ahaji, Shi-koku, Oki, Kiu-shiu, Iki, Tsushima, Sado and the main island. They begot a number of gods, and their posterity gradually increased. Amongst the descendants of their child Susanowo no kami was Oho-na-muji no kami, a god of surpassing powers. For a long time he was subjected to great annoyance at the hands of his numerous brothers, but having taken a journey to the nether world (the moon) to consult his ancestor, he was enabled, by following the advice he then received, to overcome his rebellious brethren, and establish himself as the ruler of this country. One of his many names is Oho-kuni-nushi no kami, which means the 'great lord of the country.' The seat of his government was in the province of Idzumo. He had many children, the eldest of whom was Koto-shiro-nushi no kami, one of the eight gods worshipped in the Zhiñ-gi-kuwañ; second was Aji-suki-taka-hiko-ne no kami, the god of Kami-gamo near Kiyau-to; and another was Take-mi-na-gata no mikoto, the god of Kami no Suwa in Shinano. Oho-na-muji is a corruption of Oho-na-mochi, the Great Possessor of Names, a title given to him because of the numerous names which he possessed. In conjunction with Sukuna-bikona no kami, the eldest son of the two creators, he completed the work begun by Izanagi and Izanami, and civilized the country. To these two gods are ascribed the discovery of medicine and the invention of divination.

Amaterasu oho-mi-kami, having been appointed Queen [50] of the sun by Izanagi, shares the government of the world with the two creators. She in turn desired to make a son of her own ruler over the terrestrial world. This was Oshi-ho-mimi no mikoto, a god who was produced from the goddess' necklace; he was married to Tama-yori-hime no mikoto, a grand-daughter of the two creators. The offspring of this pair was Ninigi no mikoto, who was therefore the grandson of Amaterasu, and the title Sume-mi-ma no mikoto (Sublime Grandchild) applied to him expresses this relationship. Ninigi no mikoto replaced his father as sovereign-designate of the world, but as Oho-na-muji who was in actual possession could hardly be expected to surrender peacefully, a council was held of all the gods. By the advice of the most sagacious of the gods, one of the other children of Amaterasu, named Ame-no-hohi no mikoto, was sent on an embassy to the world, to persuade Oho-na-muji to give up his rights. The envoy remained away

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three years, and as no result had yet been obtained, a second envoy was despatched, who was to induce Oho-na-muji to submit by a display of military force. The second envoy, however, fell in love with Shita-teru-hime, a daughter of Oho-na-muji, and failed to perform his errand. He even slew a messenger who was sent to stimulate him to accomplish his mission. Upon this an expedition was started under two warlike gods named Take-mika-dzuchi and Futsu-nushi, who in joint action with Ame-no-hohi no mikoto succeeded at last in obtaining from Oho-na-muji a renunciation of his sovereignty over Japan in favour of the Sublime Grandchild. The only conditions which he exacted were that he should have a temple built for his residence where proper services might be performed in his honour, and that the Unseen (*kakuri-goto*) should be placed under his charge. This arrangement was ratified by Amaterasu and the two creators. The temple of Oho-yashiro in Idzumo, which exists to this day, was built for Oho-na-muji, and Ame-no-hohi, from whom sprang the family of the Idzumo-no-kuni no miyatsuko, at first hereditary governors of the province, and afterwards priests of the temple, became his servant.

[51] It now became possible for Ninigi-no-mikoto to descend and take possession of his realm. Before starting from the sun he received from the goddess, his grandmother, the three divine insignia, called *kusanagi-no-tsurugi* (a sword, which is enshrined at Atsuta in Wohari), the *Yasakani-no-maga-tama* (a stone) and the mirror which is worshipped at the Nai-kuu in Ise as the representative of the goddess of the sun. Accompanied by a number of inferior gods, he descended on the *Ama no uki-hashi*, or floating bridge of heaven, to Taka-chi-ho no mine, now called Kirishima yama, which lies on the boundary between Hiuga and Ohosumi in Kiu-shiu. On this occasion grains of rice were thrown broadcast in the air to dispel the darkness which covered the sky, and it is said that rice grows wild on Kirishima yama to this day.

The *Ama no uki-hashi* was a thing by which communication took place between heaven and earth in those days. It floated in the air, and was also called *Ama no iha-fune*, literally, the heavenly rock-boat. It was on this that Izanagi and Izanami took their stand when they stirred about with the sacred spear to find land. There are still remains of the *hashi-date*, lofty mounds by which the *uki-hashi* was reached, in the

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provinces of Harima and Tañ-go. After the descent of the Sublime Grandchild, the sun and the earth, which had already receded from each other to a considerable distance, gradually became further separated, and communication by the floating bridge ceased. The *hashi-date* fell down, and have since lain on their longest side: that near Miyadzu in Tañ-go measures twenty-two thousand two hundred and ninety feet in length.

The sun having thus ascended, became fixed in the centre of space, where it constantly revolves on its axis from left to right. The earth is far removed from it in space, and moves round it from right to left, one revolution being called a year. At the same time the earth revolving on itself, produces the phenomena of day and night. The moon which split off from the earth about the same period revolves round the earth in a little over twenty nine days and a half, waxing and [52] waning as it goes. The process by which the sun, earth and moon were thus produced resembles the separation of the umbilical cord and the placenta at the birth of a child, or the detachment of a ripened seed from the capsule. It is not merely a fortuitous resemblance, but the processes are identical in all three cases.

As it was Japan which lay directly opposite to the sun when it had sprouted upwards and separated from the earth, it is quite clear that Japan lies on the summit of the globe. It is equally evident that all other countries were formed at a much later period by the spontaneous consolidation of the foam of the sea and the collection of mud in various localities, when Izanagi and Izanami brought forth the eight islands of Japan, and separated the land from the water. Foreign countries were of course produced by the power of the creator gods, but they were not begotten by Izanagi and Izanami, nor did they give birth to the goddess of the sun, which is the cause of their inferiority. The traditions about the origin of the world which are preserved in foreign countries are naturally incorrect, just as the accounts of an event which has happened at the capital become distorted when they travel to a province, and it finally comes to be believed that the province was the actual scene of the event. The fact is patent that the Mikado is the true Son of Heaven, who is entitled to reign over the four seas and the ten thousand countries.

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People who have been misled by their foreign studies are wont to say that Japan is a little country, as if extent of territory were any criterion of the importance or rank of a state; and they also point to her tardy civilisation. But every one knows that great minds develope late; for example Ota Nobunaga, who was commonly called *Baka dono* (Lord Idiot) until he was past the age of twenty, and the same was the case with the famous Oho-ishi Kura-no-suke, whose fame will endure to the end of time. Animals and birds know how to pick up and eat grain and insects as soon as they are born, and some have offspring when they are only two or three months old. If man were [53] to be judged by such a standard, what a helpless, good-for-nothing creature he would be. But his slow development is a proof of his superiority, and the same holds good with regard to the development of nations.

A common but extremely erroneous phrase which has obtained currency, is the "Seven Generations of Celestial Gods and the Five Generations of Terrestrial Gods." In the first place neither the Ko-zhi-ki nor the Ni-hoñ-gi, although they speak of the succession of gods beginning with Kuni-no-toko-dachi and ending with Izanagi and Izanami as seven generations of the Divine Age, call them Celestial Gods; the reason being that all these gods came into existence on the earth. The Ko-zhi-ki gives the name of Celestial Gods to Ame-no-mi-naka-nushi, the two creator gods, Umashi-ashi-kabi-hiko-ji and Ame-no-toko-dachi. The term Terrestrial Gods was given to the gods of this country after the time of Ninigi no mikoto, to distinguish them from the Celestial Gods. It is a huge error to call the succession of gods beginning with Amaterasu and ending with the father of Zhiñ-mu Teñ-wau the Five generations of Terrestrial Gods, for in the first place Amaterasu, though born on the earth, was made ruler over the sun, and is therefore distinctly a Celestial God; and secondly Oshi-ho-mimi and Ninigi were both born in heaven; neither was the title Terrestrial Gods ever applied to their descendants. The inventor of the phrase was Imibe no Masanori, the author of the *Zhiñ-dai no Maki no Ku-ketsu*, who wrote about the middle of the fourteen century. There exists no hard and fast line between the age of the gods and the present age, and there is no justification whatever for drawing one, as the Ni-hoñ-gi does, between U-kaya-fuki-ahezu and Zhiñ-mu Teñ-wau.

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The descendants of the gods who accompanied Ninigi no mikoto, as well as the offspring of the successive Mikados, who entered the ranks of the subjects of the Mikados with the surnames of Tahira, Minamoto, and so forth, have gradually increased and multiplied. Although numbers of Japanese cannot state with any certainty from what gods they are descended, all of them have tribal [54] names *(kabane)* which were originally bestowed by the Mikados, and those who make it their province to study genealogies can tell from a man's ordinary surname who his remotest ancestor must have been.

From the fact of the divine descent of the Japanese people proceeds their immeasurable superiority to the natives of other countries in courage and intelligence.

It is not necessary to quote the opinions of foreigners in order to prove that the heavens are immovable and that the earth revolves, for these facts are clear enough from ancient traditions, but as the westerners have elaborated astronomy and physical geography to a very high degree of minuteness, their account of the matter is more easily comprehended. It will be unnecessary to follow Hirata in the exposition which he here gives of the formation of the earth and its division into five continents, since he is candid enough to acknowledge the source from which it is taken. It is only fair to say that he praises the Dutch very warmly for their achievements in natural science, and accords to them a much higher place among philosophers than to the Chinese, whom he regards as empty visionaries. He also mentions Kæmpfer, and gives a summary of his "History of Japan." There exists a book called *I-zhiñ-kiyou-fu Deñ*, or the Way to Terrify Barbarians, which takes for its text that part of the "History of Japan" in which Kæmpfer gives his reasons for approving of the policy of excluding foreigners. It is difficult not to suppose that Kæmpfer's account of the dangers which have to be encountered in navigating the Japanese seas, and his statement that Nagasaki was the only port into which a good-sized vessel could enter, were prompted by a desire to serve Dutch interests. The story of the seizure by Japanese of the Dutch governor Nuits on the island of Formosa is quoted with much satisfaction by Hirata, as an illustration of the superior valour of his countrymen.

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In the 12th month of the same year, which would about correspond to January 1812, he started off secretly to Fu-chiyuu (now called Shidzuwoka) in Suruga, where he [55] quartered himself in the house of a friend, and began the composition of the *Ko-shi Sei-buñ*, or 'Complete Text of the Ancient Record.' After offering up a prayer[28] to all the gods for their aid he set to work on the 5th, and finished his labours at the end of the month. As a proof of his remarkable memory, it is said that he composed the three volumes of the Text and several volumes of the prolegomena, entitled *Ko-shi-chiyou*, without making a single reference to the works from which his materials were drawn. The *Ko-shi Sei-buñ* was apparently intended to have been brought far down into what is usually called the historical period, but the part which relates to the Divine Age is all that has at present appeared. It is a compilation founded on the texts of the Ko-zhi-ki, Ni-hoñ-gi, Ko-go-zhifu-wi, Fu-do-ki, Ku-zhi-ki, Norito and several other of the ancient books, with some slight conjectural additions of his own, and is written in the style of the Ko-zhi-ki. Many native scholars are of opinion that he has gone too far in altering the ancient texts, and prefer the originals, inconsistent and contradictory as they sometimes are, but this is a matter on which I have not had time to form an opinion. Those who care to investigate the subject will find in the last six volumes of the Ko-shi-chiyou[29] the grounds on which he adopted the text of each of the hundred and sixty-five sections into which the Ko-shi Sei-buñ is divided. In the course of the same year he began to work at the commentary, entitled Ko-shi Deñ. It was to have extended to about one hundred volumes, but only twenty-eight have as yet been printed; they cover the first one hundred and forty-three sections. The *Kai-dai-ki*, or introduction to the Ko-shi-chiyou, in five volumes, was begun in 1819 and printed shortly afterwards. Besides discussions on the authority and relative value of all the ancient records, it contains a great deal of information relative to the introduction of Buddhism, and the gradual [56] substitution of

[28] This prayer is given at the end of the supplement to vol. i. of the *Ko-shi-chiyou*.

[29] The Ko-shi-chiyou was originally entitled *Ko-shi Waku-moñ*, and the Ko-shi sei-buñ simply *Ko-shi*. It is necessary to be aware of this, because he sometimes quotes these works by their earlier titles.

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Chinese political institutions for those of native growth. Amongst other matters of interest to the historical student, it is proved that the *hou-keñ*, or feudal system, the destruction of which only a few years back was hailed as a 'return to the ancient régime,' was the original form of government in Japan, and that a central power, ruling by means of a council of state, ministries and local prefects, was an innovation derived from China.

Hirata's next work of importance was the *Tama no Mi-hashira*, completed early in the year 1813. It is of similar character to the *Sañ-dai-kau*, already named as forming a supplemental volume to the Ko-zhi-kî Deñ. The peculiar feature of the Sañ-dai-kau is that it for the first time identifies the sun with *Ame*, usually interpreted 'heaven,' and *yomi no kuni*, the region of darkness, which Motowori had explained as the abode of departed spirits, with the moon. According to this new view, Amaterasu oho-mi-kami, intstead of being the ruler of heaven, is the ruler of the sun, and Tsuku-yomi no mikoto is the ruler of the moon and not the moon itself. In the Ko-zhi-ki Deñ Motowori had defined *Ame* as a region above the sky, in which the celestial gods have their abode, and Takama-no-hara as merely another name for it. In several places in the same work he speaks of the sun as being identical with Amaterasu oho-mi-kami, and his comments on the passage of the text in which the origination of this goddess and Tsuku-yomi no mikoto from the eyes of Izanagi is related, are "the sun and moon originated from this washing" (*i.e.* of the god's eyes), and "the sun and moon did not exist before this." He makes the same statement in the *Nahobi no Mitama* and in the *Teñ-so To-zhiyau Beñ-beñ*, and although the passage in the *Sakitake no Beñ*, "*Amaterasu oho-mi-kami* * * *ima mo yo wo terashi-tamafu ama-tsu-hi no kami ni mashimasu nari*" might at first sight appear to imply that the goddess is the deity of the sun, this view is negatived by a sentence which follows on the very next page to the effect that "this great deity actually is the sun in heaven, which even now illuminates the world before our eyes, a [57] fact which is extremely clear from the divine writings." It is true that the expression *ni mashimasu* used in this place may mean either 'exists in' or 'is,' but the use of *sunahachi* (actually) favours the latter rendering, which is also supported by the other passages in Moto-

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wori's writings to which we have alluded. The Sañ-dai-kau was written in 1791, ten years before Motowori's death, by his favourite pupil Hatori Nakatsune, certainly with Motowori's knowledge, for at the end of it is a laudatory notice by the master. It is possible therefore that Motowori changed his opinion on this important point towards the end of his life, but was not willing to give more than an indirect sanction to the theory, and this supposition has given rise to the belief that the Sañ-dai-kau, although published under the name of another, was in reality his own work. It is somewhat strange that, seeing that the Sañ-dai-kau forms a supplement to Vol. XVII. of the Ko-zhi-ki Deñ, he should repeat on p. 35 of the following volume the statement that Amaterasu is the sun. Hirata has interwoven into the text of the Tama no Mi-hashira a great part of the Sañ-dai-kau, as he acknowledges in his preface, but in the body of his work he frequently quotes Hatori almost verbatim, without any special indication that he is using the words of another. A careful comparison is therefore necessary in order to distinguish between the theories which are the particular property of each writer. The following extract from Hatori's preface exhibits the vein of prejudice which was common to both.

"The accounts given in other countries, whether by Buddhism or Chinese philosophy, of the form of the heavens and earth and the manner in which they came into existence, are all of them inventions of men, who exercised all their ingenuity over the problem, and inferred that such things must actually be the case. As for the Indian account, it is only nonsense fit to deceive women and children, and I do not think it worthy of refutation. The Chinese theories, on the other hand, are based upon profound philosophical speculations, [58] and sound extremely plausible, but what they call the absolute and infinite, the positive and negative essences, the eight diagrams and the five elements are not real existences, but are fictitious names invented by the philosophers and freely applied in every direction. They say that the whole universe was produced by agencies, and that nothing exists which is independent of them. But all these statements are nonsense.

"The principles which animate the universe are beyond the power of analysis, nor can they be fathomed by the human intelligence, and all statements founded upon pretended explanations of them are to be

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rejected. All that man can think out and know is limited by the powers of sight, feeling and calculation, and what goes beyond these powers cannot be known by any amount of thinking.

"How is it then possible for men who were born hundreds and thousands of myriads of years after the origin of the universe, to know how it originated and the successive steps by which it assumed its present form? Our country, owing to the facts that it was begotten by the two gods Izanagi and Izanami, was the birth-place of Amaterasu oho-mi-kami, and is ruled by her Sublime Descendants for ever and ever, as long as the universe shall endure, is infinitely superior to other countries, whose chief and head it is; its people are honest and upright of heart, and are not given to useless theorizing and falsehoods like other nations, and thus it possesses correct and true information with regard to the origin of the universe. This information has descended to us unaltered from the age of the gods, and unmixed, even in the slightest degree, with unsupported notions of individuals. This indeed is the genuine and true tradition. The Chinese accounts sound as if based on profound principles, and one fancies that they must be right, while the Japanese accounts sound shallow and utterly unfounded in reason. But the former are lies, while the latter are the truth, so that as time goes on, and thought attains greater accuracy, the erroneous nature of these falsehoods becomes ever more apparent, while the true tradition remains intact. My [59] reason for this observation is that in modern times men from countries lying far off in the west have voyaged all round the seas as their inclinations prompted them, and have ascertained the actual shape of the earth. They have discovered that the earth is round, and that the sun and moon revolve round it in a vertical direction, and it may thus be conjectured how full of errors are all the ancient Chinese accounts, and how impossible it is to believe anything that professes to be determined à priori. But when we come to compare our ancient traditions, as to the origination of a thing in the midst of space and its subsequent development, with what has been accertained to be the actual shape of the earth, we find that there is not the slightest error, and this result confirms the truth of our ancient traditions. But although accurate discoveries made by the men of the far west as to the actual shape of

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the earth and its position in space infinitely surpass the theories of the Chinese, still that is only a matter of calculation, and there are many other things actually known to exist which cannot be solved by that means; and still less is it possible to solve the question of how the earth, sun and moon came to assume their form. Probably those countries possess theories of their own, but whatever they may be, they can but be guesses after the event, and probably resemble the Indian and Chinese theories."

The plan adopted by both writers is to give a series of diagrams representing the gradual formation of the sun, earth and moon, together with the evidence by which each diagram is supported, followed by a commentary. Hatori quotes from the Ko-zhi-ki and Ni-hoñ-gi, while Hirata relies for his proofs on the text of the *Ko-shi*, which he had just completed. A minute examination of this work would probably show that it contains deviations from the ancient authorities, prompted by a desire to harmonize revelation and science. It appears that he had acquired a slight degree of knowledge of astronomy, either from some of his countrymen who were acquainted with the Dutch language, or from translations of Dutch books. He had thus [60] learnt and admitted as a fact, that the earth moves round the sun, and was therefore considerably ahead of Hatori, who preferred to believe what he saw with his eyes, and only cursorily mentions the theory of the earth's movement as a matter of indifference to his views of the cosmogony. Hirata of course assumed the truth of all ancient Japanese traditions, but saw that they were sometimes inconsistent with each other and with actual fact, and he hoped by reconciling these contradictions to prove that Shiñ-tau contains all the knowledge necessary to man. He is therefore not to be implicitly depended on for a correct view of the ancient belief about the origin of things.

Diagram 1 in both books is a large circle containing three black spots in its upper part. This is intended to represent the existence of Ame-no-mi-naka-nushi, Taka-mi-musu-bi and Kamu-mi-musu-bi in space, before the sun, earth and moon were formed. The circle means nothing; it is merely introduced to give the reader a definite idea of what is meant by space, but as it is dispensed with in the third and succeeding Diagrams, when the reader is requested to look on the blank part of

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the page as representing space, it seems hardly necessary even here. Hatori quotes the Ko-zhi-ki, which says that these three gods came into existence in *Takama no hara* in the beginning of heaven and earth *(ame tsuchi)*, while Hirata quotes his own *Ko-shi* to the effect that they 'came into being in Heaven's Sky' *(Ama-tsu mi sora)*. At a later period, in publishing his commentary entitled Ko-shi Deñ, he reverted to the old reading *Takama no hara*. A great deal of ingenuity has been expended by the expounders of Pure Shiñ-tau to prove that Takama no hara does not mean 'the plain of high heaven,' as its evident etymology would suggest. Motowori is perhaps not unreasonable in explaining it to mean a region above the sky. Hatori says that "*Takama no hara* did not exist at this period which was antecedent to all material existence, but the region wherein these three gods originated afterwards became *Takama no hara*." The theory that this name signifies 'space' is [61] derived from one of the parallel passages in the Ni-hoñ-gi, where the Chinese characters *kiyo-chiyuu* (emptiness) occur instead of *Takama no hara ni*. But this would scarcely be sufficient to prove that the ancient Japanese possessed the highly abstract idea of 'space,' and it is more natural to suppose that they meant the blue sky which they saw over their heads. Hirata has a fanciful theory about Ame-no-mi-naka-nushi and the other two gods inhabiting the Pole star, which is not usually accepted by other teachers of Shiñ-tau. In the *Ko-shi Deñ*, on the authority of a parallel passage in the Ni-hoñ-gi, he substitutes the word "existed" *(mashiki)* for "originated" (*narimaseru*), and draws thence the inference that these gods never had a beginning, but the passage from which the word *masu* is taken refers not to Ame-no-mi-naka-nushi and the other two gods, but to Umashi-ashi-kabi-hiko-ji and deities of later origin. The difficulty of supposing that *Ame* could ever have meant the sun, lies in the fact that it certainly signifies the sky or heaven, in which sense it is employed in forming the name of the primeval god, as Hirata himself states. Hirata says that the upper part of heaven is the pole star, which must therefore have been the location of the three gods. Heaven is limited on the outside, as is proved by the statement that Susanowo no mikoto made the circuit of its boundary. *Kami*, translated by 'god,' is the same as *kabi*, compounded of the demonstrative root *ka* and *bi*, or *hi*, a word applied to whatever is miraculous and supernatural,

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which is seen in *musu-bi*, termination of the names of the creator and creatrix.[30] In the Tama no Mi-hashira he derives *kami* from *kabimoye*, 'sprouting growing,' but later he became convinced that this etymology was erroneous. *Kamurogi* and *Kamuromi*, which are titles of the creator and creatrix, he derives from the continuative form of the root *Kami*, *ro* a particle, and *gi* and *mi* which are used in forming the names of male and female deities. Motowori has suggested that *gi* is a contraction of *wo-gimi*, male [62] prince, and *mi* of *me-gimi*, female prince, but nothing can be safely asserted on this point. With respect to the statement that these three gods 'concealed their bodies,' Motowori's suggestion that it signifies their incorporeality is not to be admitted, for Takami-musu-bi no kami is represented as saying that Sukuna-bikona no kami "passed between his fingers," and if he had a hand, he must have had a body, so that the tradition must be accepted in all its literal meaning.

Diagram 2 in both works represents space bounded by a circle, with three black spots as in diagram 1, and underneath them a smaller circle inscribed '*ichi-motsu*,' or Thing. Hatori supports this by the following quotations from the Ni-hoñ-gi: "In the beginning of heaven and earth, there was a Thing in the great sky, whose shape cannot be described." "Before heaven and earth had originated a thing originated in the midst, like as it were a floating cloud on the sea, without any point of attachment." "In the beginning of heaven[31] and earth, a thing like the sprout of a rush originated in the great sky"; again "a thing like floating fat originated in the great sky." Hirata quotes from his own compilation a similar passage, without any reference to the rush-sprout. Hatori ascribes the origin of this Thing to the creator and creatrix, who gradually formed the sun, earth and moon out of it, and brought various gods into existence at different stages. The fact of these creative acts being performed by the two deities named is known from a revelation made by the god of the moon, who in the year 487 entered into the body of a man, and declared to one Abe no Omi Kotoshiro that "his ancestor Takami-musu-bi no kami created heaven and

[30] Ko-shi Deñ, vol. i. f. 7v.

[31] Or 'the sun,' if we accept the theory that *ame* signifies the sun.

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earth. People and lands must consequently be presented to him." And in the same year the sun goddess made a similar revelation to the same Abe no Omi, in which she declared that Takami-musu-bi no kami was her progenitor. The comparison of the Thing to floating fat and floating cloud simply refers to its indefinite position, and involves no statement as to [63] its composition, which was probably a mixture of the natures of the sun, earth and moon.

In diagram 3 the Thing is presented in the form of a dumb-bell, with the smaller end upper-most. In Hatori's diagram there is a small projection depending from the bottom of the Thing, probably intended to indicate the budding-out of the moon. The ancient books quoted here say that 'from the thing which floated in space something sprouted up like the shoot of a rush, in which there originated two gods named Umashi-ashi-kabi-hiko-ji no kami and Ame-no-toko-tachi no kami, both of whom, like the previous three, were single gods, and hid their Bodies.'

From the name of the second god who is here mentioned it is inferred that thing which sprouted up afterwards became *Ame*, or the sun, according to Hatori and Hirata, and according to Motowori, heaven. This is nowhere explicitly stated, either in the Ko-zhi-ki or in the Ni-hoñ-gi, but is inferred from the name of the second god, *toko* being the same as *soko*, bottom, and *tachi*, to stand. Hatori supposes the nature of *ame* to have been of the essence of fire, but Hirata repudiates this as a Chinese notion, and conjectures that it was clear and bright, like crystal. The name of the first god is derived from *umashi*, pleasant, *ashi-kabi*, rush-sprout, *hiko*, an honorific term applied to males, and *ji*, another honorific, seen in the word *woji*, old man. He is identified by Hirata with Sukuna-bikona, a diminutive god who afterwards aided Ohokuni-nushi to civilize the country. The five deities who have now been named are entitled the *Amatsu-kami*, or 'Celestial gods.'

Diagram 4 in the *Tamano Mi-hashira*, represents three globes of gradually diminishing sizes, connected by short necks, the largest being uppermost, and labelled *Ame*. The five celestial gods are represented therein by the same number of black spots. How the three earliest of them found their way into this particular portion of space is not explained, and their being here somewhat favours the original explanation that *Ame*

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is heaven. It was [64] probably in order get out of this difficulty that Hirata suggested in the *Ko-shi Deñ*, that they are located in the pole-star. The central globe, which is of medium size, is marked 'earth,' and contains five small circles arranged in pairs. Underneath is the third globe, marked *Yomi*, and containing two black spots to represent a pair of invisible deities; *Yomi* is shaded with black, to express the fact that it is in darkness, owing to the interception of the sun's light by the earth. In the Sañ-dai-kau the diagram is similar, but the globes are not perfectly round, and the two black spots placed by Hirata in *Yomi*, are placed above the five pairs of circles in the earth.

Hatori acknowledges that neither the Ko-zhi-ki nor the Ni-hoñ-gi contain any tradition as to the formation of *Yomi*, but that probably something grew downwards from the underside of the Thing, which developed into *Yomi*, just as from its upper surface something had sprouted up which became *Ame*.

Hirata, however, finding in one of the parallel passages quoted in the Ni-hoñ-gi, the sentence "Next there was a Thing like floating fat, which came into existence in the sky, from which a god originated named Kuni-no-toko-tachi no kami," converts this into "Next, [from the root of the Thing which was drifting about like a floating cloud], a Thing came into existence. The name of the god who originated from this thing was Kuni-no-soko-tachi no kami." It may be observed that the original text does not connect the second Thing with the first, from which the Ame is supposed to have been formed, and in the *Ko-shi Seibuñ* he afterwards omitted the sentence enclosed between brackets. To this he added part of a passage from the *Ko-zhi-ki*, which speaks of Toyo-kumu-nu no kamj. These two gods were single gods, and were invisible, for which reason they are represented in the diagram by black spots. They were succeeded by five pairs of deities, Uhi-jini and Suhi-jini, Tsunu-guhi and Iku-guhi, Oho-to-no-ji and Oho-to-no-be, Omo-daru and Aya-kashiko-ne, Izanagi and Izanami. The word *imo*, which means either sister or wife, is [65] prefixed to the name of the second of each of these pairs, and each pair counts as one generation, making, with the two single gods previously named, the seven Generations of the Divine period (*kami-yo nana-yo*). The title *kami* is given to each, but I have omitted it to

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save space, as I shall continue to do henceforth in the case of all other gods. *Uhi-jini* signifies 'first mud,' *Suhi-jini* 'sand and mud.' The names of the next pair are said to be derived from *tsumu*, a germ in which the hands and feet, head and tail are yet undistinguishable, *guhi*, the same as *kamu*, to integrate, and *iku*, which signifies the commencement of life, and is the same as *ikiru*, to breathe. The names of the next pair are interpreted to mean 'man and woman of the great place,' pointing to the fact that solid land was formed. *Omo-daru* is 'complete perfection,' and *Aya-kashiko-ne* is 'awful one,' *aya* being an ejaculation of awe (from which come *ayashi*, strange, and *ayaushi*, perilous), and *kashiko*, an adjectival root meaning awful. The name of the female is said to express the sentiment which filled her when she looked at the male. *Iza* in the names of the last part is supposed to be the radical of *izanafu*, to invite, and to allude to their invitation to each other to join in begetting the earth; *gi* and *mi* are the same as in *Kamurogi* and *Kamuromi*, the titles already mentioned as being given to the creator and creatrix. It appears from these etymologies that a gradual progress in devolopment is here indicated, and Hirata suggests that the first four pairs are not distinct deities, but merely names descriptive of the various stages through which Izanagi and Izanami passed before arriving at the perfection of existence. As it seems certain that they were never worshipped in any known period of history, this theory is accepted by many modern writers on Shiñ-tau.

The globe called *Yomi* is identified by both Hatori and Hirata with Yomo-tsu-kuni or Yomi no kuni, the region whither Izanami betakes herself after the birth of Homusubi, the god of fire. Other names for it are *Ne no* [66] *kuni*, literally the 'root-region,' because of its being at the root of the earth, *Soko no kuni*, or the 'bottom region,' *Shita-tsu-kuni*, or the 'under region,' and *Ne-no-katasu-kuni* from *katasumi*, one corner, used in the sense of lowermost or most distant. *Yomi* is explained to mean darkness. The reasons for identifying *Yomi no kuni* with the moon are several. In the first place the element *Yomi* in the name *Tsuku-yomi no mikoto* is evidently the same as *Yomi*, 'the kingdom of darkness,' whither Susanowo no mikoto finally proceeded. Secondly, although in the Ko-zhi-ki the rule of the sea is given to the latter god, one of the parallel passages of the Ni-hoñ-

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gi speaks of Tsuku-yomi no mikoto as being appointed ruler over the multitudinous salt-waters. The murder of the goddess of food is attributed to the former by the *Ko-zhi-ki*, to the latter by the *Ni-hoñ-gi*.[32] The fact that the tides of the sea actually follow the moon's movements is another reason for assuming these two gods to have been one. As the whole region pervaded by the light of the sun was called *hiru*, or day, the expression *yoru no wosu kuni*, 'the realm of night,' over which the Ko-zhi-ki says Tsuku-yomi was appointed to rule, would be extremely appropriate to *yomi*, from which the sun's light would be intercepted by the earth.[33] Hirata further points out that the notion of *yomi* being the abode of the dead is comparatively modern, and that the few gods who are spoken of in the ancient records as having gone thither, were still in the body when they did so.

Diagram 5 exhibits a marked difference between the two writers in their theories as to the subsequent development of the system of the three bodies. In Hatori's diagrams the sun continues to be attached to the earth until after the descent of Ninigi no mikoto, while Hirata places the separation at some time antecedent to the descent of Izanagi and Izanami. This divergence is owing to the different explanations given by them of the *ama no uki-hashi* (literally, heaven's floating bridge) which Hatori represents [67] as an axis connecting the sun with the earth, which is ever growing longer and consequently thinner, while Hirata interprets it to mean some kind of huge boat, in which the gods went backwards and forwards between the two bodies.[34] He argues that the phrase "this floating region" used of the earth by the celestial gods in commanding Izanagi and Izanami to form and harden it, can only be interpreted on this theory, for if the separation had not taken place the term "floating" could not have been applied to the earth alone. He consequently represents the sun detached, and to the right of the earth above it. The spear *(nuboko)* which was given to this pair for the purpose of forming the earth is supposed by him to have been of iron in the form of the lingam, and *nu*, which is interpreted to signify *tama*,

[32] *Ko-zhi-ki Deñ*, vol. ix. f. 9.

[33] *Sañ-dai-kau*, ff. 15 and 16.

[34] *Tama no Mi-hashira*, vol. ii, f. 26.

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a ball, has a profound signification if this view be adopted.[35] The passage quoted here by Hirata from the *Ko-shi* says that "The two gods, setting forth on the *ama-no-uki-hashi*, pushed down the spear and stirred the plain of the green sea.[36] When they drew it up after stirring it round and round, the drops which fell from its end, spontaneously consolidated and became an island. This was Ono-goro-zhima." This name was given to it on account of its 'spontaneous consolidation,' and to distinguish it from the other islands of Japan, which were begotten by Izanagi and Izanami in the ordinary manner. They descended on to this island, and planting the *nuboko* in the ground point downwards, built a palace round it, taking it for the central pillar which was to support their roof. The point of the spear became the axis of the earth. Ono-goro-zhima is identified by the author of the *Zhiñ-dai Ku-ketsu* with a small island at the north-west corner of Ahaji in the eastern part of the inland sea, called Ye-shima.[37] Close by is another island called Seki-rei-shima (Wagtail island), and [68] there are many other traces of the ancient tradition in the neighbourhood. The motion imparted to the fluid mass of the earth by the stirring with the *nuboko* was the origin of its daily revolutions.[38] Ono-goro-zhima was thus originally at the north pole, but subsequently removed to its present position. In what manner this happened we are not told. Nevertheless, Japan continues to be on the summit of the terrestrial globe. It appears that some one having objected that, if Japan were on the top of the world and opposite to the sun, the sun would be in the zenith at the equinoxes, Hatori was puzzled and referred the point to Motowori, who replied that as the sun and moon move round from East to West, and not from North to South, it is evident that the globe, in spite of its being round, may be said to have sides, that is, top, bottom, right, left, back and front. Just as the

[35] *Ko-shi Deñ*, vol. ii, f. 23, note.

[36] This is a literal rendering of *awo-una-bara*. Hirata, however, assumes the term to mean the appearance of the semi-fluid earth as it was seen from heaven, and rejects the common explanation.

[37] *Ko-shi Deñ*, vol. ii, f. 46.

[38] It is hardly necessary to note that this is not warranted by anything in the ancient records, as the earth was always supposed to be stationary until the Japanese learnt the opposite from Europeans.

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face of a man is not on the top of his head, but on the front, so Japan, being in the middle of the top has the sun and moon on its south, which is therefore the front; the north is consequently behind, the east is the left side and the west the right side. From which it is perfectly clear that Japan is on the summit of the terrestrial globe. The objector replied that all countries which have the sun on their south would have an equal right to claim the same position. The answer to this is that the position of Japan is not determined by the fact of the sun and moon being in front of her, but the manner in which they appear to her is owing to her position at the top of the earth. Hirata strengthens the argument by pointing out that Japan altogether escaped the deluge which took place in China in the reign of Yaou, and also the Noachian flood which drowned occidental countries, solely through her elevated situation. China suffered less than the west, and Korea less again, on account of their proximity to Japan.

The only mention made of the stars in the ancient [69] writings is in the *Ni-hoñ-gi*, where the star-god Kagase-wo-no-mimi[39] is spoken of as being at first unwilling to submit to the fore-runners of Ninigi no mikoto, but nothing is said of the manner in which the stars came into existence. According to a theory proposed by one Satou Nobu-fuchi, which is quoted by Hirata with approval, when the two gods lowered the spear and stirred round the chaotic mass out of which the earth was to be formed, the muck which was unfit to enter into the composition of the earth was removed by the action of the spear-point, and scattered lump-wise in all directions throughout space, taking up positions more or less remote. The five planets, the twenty-eight constellations and the host of common stars being thus formed, revolve round the sun together with the earth.[40] Hirata has another view of his own, which is, that as the Thing which formed in space and afterwards developed into the sun and the earth, is said to have resembled a hen's egg in shape, when the Thing separated, its shell must have burst, and the fragments flying off on all sides would begin to revolve round the sun, attracted by the powerful rotatory motion of that body.[41] It is custom-

[39] Also called Amatsu-mika-boshi and Ama-no-kagase-wo.

[40] *Ko-shi Deñ.* vol. ii, f. 36.

[41] Idem, f. 38.

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ary to suppose that the stars have no practical purpose; but it is evident that they are intended to guide the course of those barbarian mariners, who, if they knew their duty, would bring ships laden with tribute to the Emperor of Japan.

Diagram 6 in the *Tama no Mi-hashira* represents the sun as in the last, with the five black spots which stand for Celestial gods, and the earth is now marked off into Japan, foreign countries variously situated below it, and the sea. The passage from the *Ko-shi* on which this diagram is based narrates what may be euphemistically termed the courtship of Izanagi and Izanami,[42] which resulted in a [70] child of so poor a consistency, that he was unable to stand on his legs when he had reached the age of three years. They put him into a boat woven of rushes, which were the only available materials then existing, and abandoned him to his fate on the wide ocean. Another child which they begot, named Aha no shima, was also a failure, and they were driven to ask the advice of the Celestial Gods. The Celestial Gods had recourse to divination, which is explained to be a means of obtaining knowledge or information from divine beings without their being aware of it. It seems strange that the three gods who hold the highest rank among their race should not have been able to give a direct answer without applying to some one else, but Hirata explains this apparent anomaly

[42] The following is an almost literal translation. Tunc Izanagi quaesivit ab Izanami, "corpus tuum quo in modo factum est?" Et illa, "Corpus meum crescens crevit, sed locus est qui continuus non crevit." "Corpus meum," inquit Izanagi, "crescens crevit, sed locus est qui superfluus crevit. Nunc mihi propositum est, si tibi, videtur, mei corporis eum qui superfluus crevit locum, corporis tui in eum locum inserere qui non continuus crevit, et terram generare." Izanami respondit, "Commodum erit." Tunc Izanagi, "Ego et tu, quin circumeuntes cœlestem hanc columnam, thalamo jucunde coimus." Hac pactione facta, "Tu sinistra," inquit Izanagi, "ego autem dextra, circumeuntes occurremus." Hac pactione facta, ubi circumeuntes faciem facei opposuerunt, Izanami primum "O adolescens venuste," deinde Izanagi, "O virgo venusta." Postquam hæc locuti sunt, Izanagi, nullo modo gaudens, dixit sorori, "Me decebat primum loqui, quia vir sum; non est fœminæ primum verba facere." Sed ubi incipientes (sc. opus procreationis) coierunt in thalamo, artem ignorabant. Tunc advolavit motacilla, qui caput caudamque movebat. Dii hoc imitantes, coitionis viam cognoverunt, et filium hirudini similem pepererunt.

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by the analogy of a prince who charges each of his servants with some branch of affairs, and in answer to a request for information on any point refers the inquirer to the servant who knows all about it. The answer to Izanagi and his consort was that they should try over again, and as they carefully avoided the error which they had committed on the previous occasion, they were very successful. The first of the series of children which they now begot was Oho-yamato Akitsushima, the main island of Japan, and it was born with a caul, which is the present island of Ahaji. Both of the names Yamato and Akitsu-shima originally belonged to the present province of Yamato, the former dating from a late period of the so-called Divine Age, the latter from the reign of Zhiñ-mu Teñ-wau.[43] They were afterwards extended to the whole [71] of the main island, but are no longer so employed. Next were born the islands of Iyo,[44] which had one body and four faces, Tsukushi[45] with one body and five faces, Iki, Tsushima, the triplets of Oki, and Sado. According to a variation of the legend Oki and Sado were twins. Ahaji is added to the others to make up the number of eight, whence the name of *Oho-ya-shima-kuni*, the Country of Eight Islands, applied to the whole empire of Japan. No mention is made of what are now called Kara-futo, or Saghalien and Yezo, which were probably discovered at a much later date than the 8th century, when the *Ko-zhi-ki* and *Ni-hoñ-gi* were committed to writing. The legend also speaks of the birth of other islands, one of which was Kibi no Ko-zhima, now divided into Bi-zeñ, Biñ-go, Bi-chiyuu and Mimasaka, Adzuki-shima in the inland sea, now called Seudzu-shima, Hime-shima off Hi-zeñ, Chika-shima, supposed to be the Go-tau islands, and the Futago-shima, which cannot be identified. The remaining small islands were formed by condensation of the foam of the sea. After the country had been thus produced, the two gods begot all the gods (*ya-ho yorodzu no kami*) and

[43] The Chinese posthumous names of the early *mikados* are supposed to have been determined in the reign of Kuwañ-mu (782-806). The earliest case of one being applied was in 758, when the posthumous title of Shiyau-mu was given to the reigning Mikado's predecessor. See *Ko-zhi-ki Deñ*, vol. xviii, f. 3.

[44] That is Shi-koku with its four provinces.

[45] Tsukushi is the ancient name of Kiu-shiu, which was originally divided into five provinces, Tsukushi, Toyo, Hi, Himuka and Kumaso.

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bestowed on them all things; and next, seeing that the land was covered with mist, Izanagi produced the two gods of wind, male and female, from his breath.

Hatori has a long note showing that the islands of Japan were begotten in exactly the same manner as human beings and everything else that has life, whether animal or vegetable, and being quite small at their birth, gradually increased in size by the accretion of matter. The result of the birth of Japan was that the sea and land were gradually parted, and the way thus prepared for the formation of foreign countries by the spontaneous condensation of the foam of the sea. Hirata finds this truth concealed in the statement about "the remaining [72] small islands," a not unique example of interpreting ancient records so as to fit in with the progress of modern discovery.

The god of fire was the last child in whose conception the two gods shared. He is called Ho-musubi and also Kagutsuchi, and Hirata thinks he ought to be identified with the element itself. The goddess suffered great pain in bringing him into the world, and from the matter which she vomited forth in her agony originated the god and goddess of metal (*Kane*). Hirata derives the word *kana-yama* (a metalliferous mine), which forms part of the names of these two deities, from a contraction of *kare-nayamashi*, to cause to wither and feel pain. In consequence of Izanagi breaking her injunction not to look upon her face during the period of her retirement, Izanami departed towards the nether region, but bethinking herself that the god of fire, if left uncontrolled in his actions, would bring ruin on the upper world, she returned for a short time and produced from her fæces the gods of clay and from her water the god of fresh water, whom she commissioned to pacify the god of fire whenever he was inclined to be turbulent. Clay and fresh water were produced at the same moment as the gods which rule them. From the statement that Izanami forbade the god to look at her during seven days and nights, Hirata argues that day and night already existed, which supports his view that the sun was already separated from the earth. As the earth revolved, it was day when it was opposite to the sun, and night when it was turned away from the sun. He neglects, however, to explain how the earth, to the bottom of which the moon was still attached, could do this, and the expression 'opposite to the sun' is extremely obscure. It

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is at least evident that according to this theory of Japan being on the top of the earth, the 'kingdom of darkness' must have been illuminated whenever Japan was in the dark.

After the departure of his companion, Izanagi took vengeance for her loss upon Kagutsuchi, whom he clove into three pieces with his sword. From these pieces [73] originated the god of thunder (*Ikadzuchi*), of mountains (*Oho-yamatsumi*), and of rain (*Takawo-kami*). The blood which fell from the edge of his weapon flew up to the sun, and was converted into unnumbered rocks in the dry bed of the Ama-no-yasu-no-gaha, and the blood which fell from the guard and point, as well as that which remained on his hand, spirted on to the rocks thus formed. Blood and fire being the same thing, the sun thus became a receptacle of heat.

The next event was the visit of Izanagi to *Yomi*, with the object of finding Izanami and inducing her to return to the upper world. No precise information exists with reference to the road by which he travelled, but it is supposed to have been a hole through the centre of the earth, the outlet of which is at Ifuya-zaka (pronounced Yûya-zaka) in Idzumo. "When Izanami no mikoto came forth from her palace door to meet him, he addressed her, saying, 'My dear sister, come back again, for the country which you and I made is not yet finished.' She replied, 'Lamentable indeed that you came not earlier. I have eaten of the cooking of *Yomi*. Nevertheless, as my brother has graciously come hither, I would desire to return. To-morrow I will discuss it fully with the god of *Yomi*. Do not look for me, my brother.' Saying this she returned within the palace. A long time elapsed, and he felt impatient; so breaking off the end-tooth of the many-toothed comb which he wore in the left bunch of his hair, and lighting it, he entered in to look. He found her over-run with maggots and in a state of semi-putrefaction." The legend goes on to relate Izanagi's struggle to escape, during which he created various gods, one of whom, called Kunado no kami, was produced from his staff. Another was Chi-gaheshi no kami, the rock with which he closed up the road. Izanami's reason for not returning was that she had eaten food cooked with unclean fire, and was defiled thereby. The god of fire hates impurity, and she was afraid of his wrath. It is well-known that it is impossible to succeed with a casting if the metal has been melted with fire which is not perfectly pure. [74]

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As soon as Izanagi returned to earth he hastened to wash himself in the sea, at a locality which cannot be precisely determined, but it appears to have been in either Hiuga or Chiku-zeñ. The legend says: "The names of the gods whom he produced by blowing when he plunged into the middle shoal and washed, were Yoso-Maga-tsu-hi no kami and Oho-Maga-tsu-hi no kami. These two gods originated from the pollution which affected him when he went to that region of perpetual foulness. * * The names of the gods whom he produced by blowing in order to correct the evil [to be done by the two last] were Kamu-Nahobi no kami and Oho-Naho-bi no kami. * * The name of the god who originated subsequently when he washed his left eye was Ama-terasu oho-mi-kami, also called Ama-terasu-oho-hiru-me no mikoto, and the name of the god who originated when he washed his right eye was Tsuku-yomi no mikoto, also called Take-haya-Susa-no-wo no mikoto. Then Izanagi no kami rejoiced greatly, and said, "I have begotten Child upon Child, and at the end of my begetting, I have begotten me two rare Children." Now the brightness of the Person of Ama-terasu oho-mi-kami was beautiful, and shone through heaven and earth. Izanagi no kami spake, and said, "Though my children are many, none of them is like this miraculous Child. She is not to be kept in this region." Then taking the necklace of precious stones from his neck, and rattling it, he gave it to Ama-terasu oho-mi-kami, and spake, commanding her in these words, "Rule thou over Takama no hara." As the distance between the sun and earth was not great at this period, he sent her up by the *Ame-no-mi-hashira*. * * Next he spake unto Take-haya-susa-no-wo no mikoto, and commanded him, saying, "Rule thou over Awo-una-bara, and the multitudinous salt water." * *

The statement that Take-haya-Susa-no-wo is another name of Tsuku-yomi is not to be found in any of the ancient texts, and is an emendation of Hirata's founded upon the grounds already noticed for supposing the two gods to be in reality one. The Ame no mi-hashira was [75] supposed by Mabuchi to be one of the gods of wind, but Hirata explains it to be one of the *hashi-date* of which mention has already been made. In the *Ko-shi Deñ* he makes Yaso-maga-tsu-hi and Kamu-naho-bi to be simply alternative names of Oho-maga-tsu-hi and Oho-naho-bi. The birth of the first was intended as a mark that Izanagi had purified his

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body from the pollution which he had brought back with him from *Yomi*, and he sprang from Izanagi's strong resolve to get rid of those pollutions. Hence this god utterly detests defilement of whatever kind, and becomes violent in his conduct whenever any unclean thing is done. His name is derived from the calamities *(maga)* which he causes. Motowori's view that this god was actually produced from the filth of *Yomi*, and is therefore an evil god, is wrong. Apart from the wrath which he manifests on certain occasions, he is disposed to do good, as is evidenced by his having planted the whole of Japan with trees, the seeds of which be brought down from heaven. Naho-bi no kami was similarly produced by the earnest desire of Izanagi to remedy the evils which might be produced by the zeal of Maga-tsu-hi no kami. Both gods and human beings have in them the spirit of these two gods, wherefore they are angry with whatever is foul and wicked, and are tempted to act violently. It is Naho-bi no kami's spirit which moderates their wrath and disposes them to mercy.

Hirata endeavours to prove that *awo-una-bara* means the whole earth, and that the phrase "multitudinous salt-water" is only added for the sake of emphasis. He derives *umi* (of which *una* is only another form) from *umu*, to beget, to bear, and interprets *una-bara* to mean the 'just born plain.' *Awo* is green, applied either in the sense of young, or because the earth seemed to be of a green colour when viewed by the celestial gods from above. It will be remembered that Izanagi and Izanami dipped the spear into *awo-una-bara*, and separated the dry land from the sea, so that if Hirata's etymology were correct, the name would be no longer applicable when Tsuku-yomi was invested with his kingdom. The safest opinion is that [76] *awo-una-bara* means simply the 'blue waste of sea,' and that the ancient inhabitants of Japan, amongst whom these different legends sprang up, never thought of trying to make them consistent with each other. Hirata's theory seems to have been invented to prove that Susa-no-wo was first made ruler over the earth, but preferred to go to his mother in the moon, thus leaving the earth vacant for Ninigi no mikoto, who, being in a certain sense the joint offspring of Susa-no-wo and the sun-goddess, united in his person all the rights of Izanagi and Izanami. The rest of the *Tama no Mi-hashira* is occupied by the legends relating to Oho-kuni-nushi's first occupation of Japan and the descent of Ninigi no mikoto which have already been

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briefly summarized in a former part of this paper. The separation of the moon from the earth, which is figured by him in his tenth and last diagram, is supposed to have taken place after the visit of Oho-kuni-nushi to the lower world. Hatori agrees with him on this point, but supposes Oho-kuni-nushi to have gone to the moon after his surrender of the Empire to Ninigi no mikoto, whereas Hirata maintains that he rules over the Hidden World, which is on the earth.

In the year 1818 Hirata wrote the *Nifu-gaku Moñ-dafu*, a short work on the elements of the ancient way, intended for beginners. It is an excellent introduction to his other works on Shiñ-tau, and may be recommended to those who do not care to gain more than a general view of his opinions. At the end of the volume is an useful bibliographical list of all his acknowledged works, compiled by some of his disciples. Two years later he completed the *Ama-tsu Norito Kau*, a commentary on a *norito* which is not contained in the *Yeñ-gi Shiki*, but which, if genuine, supplies a lacuna in the *Oho-barahi no kotoba*, and serves to clear up a point therein which had considerably puzzled all preceding commentators. During this period he was busily working at the *Ko-shi Deñ*, which he did not live to complete. Besides this, he completed a new edition of Hatori's *Sañ-dai-kau*, an account of a curious stone found by him in Kadzusa, which he christened Ama-no-Iha-buye, [77] and the *Ko-shi-chiyau Kai-dai-ki;* began a new edition of the *Zhiñ-mei Shiki*, or list of Shiñ-tau temples and gods given in the *Yeñ-gi Shiki*, drafted the *Morokoshi Tai-ko Deñ*, a work on the ancient traditions of China, of which only the text and about one-fourth of the commentary have yet appeared, began the *Iñdo Zau-shi*, which is said to have been intended for a complete treatise on Buddhism, and printed a short life of Sugahara Michizane under the title of *Ten-mañ-gu Go-deñ-ki*. In the year 1819 he completed the draft of his work on the *Zhiñ-dai no Mozhi*, or so-called native Japanese alphabet of the pre-historic age. This consists of two volumes entitled *Zhiñ-zhi Hi-fumi Deñ* and one entitled *Gi-zhi Heñ*. The first contain some thirteen or fourteen tables of square and cursive characters; the latter is a collection of a number of specimens of widely different appearance, all of which are asserted to be native Japanese characters, but concerning whose genuineness Hirata does not venture to pronounce an opinion.

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The first thing that will strike any one who examines the square characters given in volume I. is their unmistakable identity with the Korean alphabet, the sole difference being that the Korean letters are combined so as to form the forty-seven syllables used in spelling Japanese words. The cursive forms, however, bear scarcely the remotest resemblance to the square, and it is difficult to suppose that they have a common origin. Having devoted several pages of Volume I. of the *Kai-dai-ki* to the discussion of the evidence for the existence of an indigenous method of writing in pre-historic times, and having decided the question in the affirmative, Hirata does not think it worth while to entertain the suspicion that these so-called *Zhiñ-dai no Mo-zhi* have been copied from the Korean alphabet, but on the contrary maintains that the Koreans made their alphabet out of the *Zhiñ-dai no Mo-zhi*, and arbitrarily invented a number of additional signs to meet their own wants. He supposes that the *Zhiñ-dai no Mozhi* must have been carried to Korea after its conquest by Zhiñ-gou-kuwau-gou (200 A.D.), and have been preserved there in some [78] mysterious manner, until in the beginning of the 15th century they were utilized to form an alphabet, for which the Sanskrit alphabet was taken as a model. From a Korean work written in the Chinese language, quoted by Itou Nagatane in the *Sañ-kañ Ki-riaku*, the Korean alphabet appears to have been invented by a King of Korea who began to reign 1419. But if a Japanese alphabet ever existed, it had been entirely forgotten by the Japanese centuries before this date, and it is difficult to suppose that it should have been preserved by the Koreans in such a manner that they were still able, after so long an interval, to assign what Hirata acknowledges to be very nearly the correct pronunciation to each letter. An alternative supposition of course, is that those of the so-called *Zhiñ-dai no Mozhi*, which are identical with combinations of the Korean letters, were copied from that alphabet in comparatively modern times, and if we could obtain a sight of the original manuscripts said to be preserved at various Shiñ-tau temples in Japan, of which Hirata himself only had seen copies, it is probable that such conclusions might be drawn as to the age of the material on which they are written, as would serve to determine their value as authentic documents. Apart from these considerations it would hardly seem probable, arguing *à priori*,

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that the *Zhiñ-dai no Mo-zhi*, which must have been alphabetic, should only be preserved in a syllabic form, as is the case with the specimens we speak of, or that the Japanese, if they had ever possessed such a treasure as an alphabet capable of expressing all the sounds of their language, should have abandoned it for the cumbrous method of ideographic writing which they afterwards learnt from the Chinese. The question is of some importance; for if it were decided in favour of Hirata's views, we should be compelled to allow a greater degree of credibility to the earlier historical records of Japan than there seems at present reason to attribute to them.

Hitherto the teaching of Hirata had not appeared to differ much in principle from that of his predecessors, whose object was to preserve from oblivion the ancient [79] monuments of Japanese literature and history, and to disprove the accusation that before the introduction of Chinese philosophy the Japanese were a nation of savages without any rule of conduct. But we shall see that the real goal to which his efforts were directed was the establishment of a religion on a Shiñ-tau basis, before which both Buddhism and Confucianism should disappear. It is this endeavour which has caused him to be regarded in a certain sense as the founder of a new school, although on a close examination of his system it would no doubt be found that he was actually indebted to the Chinese philosophy for the moral code which he attempted to derive from Shiñ-tau, and that the latter possesses only those characteristics of a religion which belong to theological dogma.

The *Tama-dasuki* has already been mentioned as one of the works which Hirata wrote in the year 1811. It appears to have been originally composed in a very colloquial style; but in 1824 he completely rewrote the first nine volumes, and gave to them a shape more worthy of the subject. It is a commentary on certain prayers which he had drawn up for the use of his pupils, and contains, half buried in a mass of irrelevant matter, his views of Shiñ-tau as a religion, and the biographies of Kada, Mabuchi and Motowori, which have been utilized in the foregoing part of this paper. The first five volumes were printed in 1829, the next four some time after his death, and the tenth, which contains his teaching as to the worship of ancestors and his life by his adopted son Kanetane, was published in 1874.

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As Hirata observes, the celebration of rites in honour of the gods was considered in ancient times to be the chief function of the Mikados. When Ninigi no mikoto descended from heaven, his divine progenitors taught him how he was to rule the country, and their teaching consisted in this: "Everything in the world depends on the spirit of the gods of heaven and earth, and therefore the worship of the gods is a matter of primary importance. The gods who do harm are to be appeased, so that they may not punish those who have offended them, [80] and all the gods are to be worshipped, so that they may be induced to increase their favours. To compel obedience from human beings and to love them, was all the sovereign had to do, and there was no necessity for teaching them vain doctrines such as are preached in other countries. Hence the art of Government is called *Matsuri-goto*, which literally means "worshipping." Accordingly the early sovereigns worshipped the gods in person, and prayed that their people might enjoy a sufficiency of food, clothing and shelter from the elements, and twice a year, in the 6th and 12th months, they celebrated the festival of the General Purification,[46] by which the whole nation was purged of calamities, offences and pollutions.

'Although in later ages many foreign customs were adopted, we find that the religious rites of Shiñ-tau always occupied the first place in the books wherein are recorded the rules and ceremonies of the court. For instance, the first book of the ten which are called *Riyau no Gi-ge*,[47] is occupied with the rules of the Department of Religion *(Zhiñ-gi Riyau)*. Of the fifty volumes of the *Yeñ-gi Shiki*[48] the first ten are devoted to Shiñ-tau matters. The *norito* (liturgies) contained in the 8th volume are not the private prayers of the Mikado, but are those used at the festivals which he celebrated on behalf of the whole people. The 9th and

[46] The *oho-barahi* was one of the most characteristic of all Shiñ-tau festivals. The liturgy used in celebrating it has been made the subject of numerous commentaries besides those of Mabuchi and Motowori. It is still observed in the present day.

[47] The text, called *Riyau*, dates from the year 718, and the commentary *Gi-ge* from 833. Hirata is incorrect in saying that the *Jiñ-gi-Riyau* comes first; it is in reality preceded by five other sections, forming Book I.

[48] The preface of the *Yeñ-gi Shiki* is dated 927.

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10th volumes contain the names of 3132 gods in 2861 temples at which the Court worshipped (either personally or by special envoys). In the *Shiyoku-geñ-seu* (1431) of Takabatake Chikafusa the constitution of the Department of Religion is described even before that of the Council of State. In the reign of Kau-toku (645-654), in answer to an inquiry as to how the people were to be ruled, all the ministers of the [81] Mikado replied to him, "First serve the gods, and afterwards deliberate on matters of Government." But the successors of this Mikado neglected the worship of the gods for that of Buddha, and the consequence was the decline of their authority. An effort to reform the practice of the Court was made by the emperor Zhiyuñ-toku (b. 1197, d. 1242), who in his *Kiñ-pi Mi-seu* says: "The rule of the Forbidden Precinct is that the worship of the gods come first, and other matters afterwards. At morning and evening the wise resolve to do honour to the gods is carried out with diligence. Even in the slightest matters the *Zhiñ-guu*[49] (of Ise) and the *Nai-shi-dokoro* are not to be placed after the emperor. According as the things arrive at maturity, they shall be offered up first (to the gods); but things presented by Buddhist monks and nuns, and from all persons who are under an interdict, these shall not be presented." As it is the duty of subjects to imitate the practice of the incarnate god *(ara-hito-gami)* who is their sovereign, the necessity of worshipping his ancestors and the gods from whom they spring is to be enjoined upon all every man.

'As the number of the gods who possess different functions is so great, it will be convenient to worship by name only the most important, and to include the rest in a general petition. Those whose daily affairs are so multitudinous that they have not time to go through the whole of the following morning prayers, may content themselves with adoring the

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[49] The *Zhiñ-guu* are the two temples where Amaterasu, the Mikado's ancestress and the goddess of food Uke-mochi no kami are worshipped. In the Nai-shi-Dokoro, a building within the palace, were kept the copies of the sacred mirror of Ise and the sword of Atsuta, which have been already mentioned as being among the divine treasures received by Ninigi when he descended from heaven.

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residence of the Emperor,[80] the domestic *kami-dana*, the spirits of their ancestors, [82] their local patron god, and the deity of their particular calling in life.

'In praying to the gods the blessings which each has it in his power to bestow are to be mentioned in a few words, and they are not to be annoyed with greedy petitions; for the Mikado in his palace offers up petitions daily on behalf of his people, which are far more effectual than those of his subjects.

'Rising early in the morning, wash your face and hands, rinse out the mouth and cleanse the body. Then turn towards the province of Yamato, strike the palms of the hands together twice, and worship,[81] bowing the head to the ground. The proper posture is that of kneeling on the heels, which is ordinarily assumed in saluting a superior.'

PRAYER.

"From a distance I reverently worship with awe before Ame no Mi-hashira and Kuni no Mi-hashira, also called Shinatsu-hiko no kami and Shinatsu hime no kami, to whom is consecrated the Palace built with stout pillars at Tatsuta no Tachinu in the department of Heguri in the province of Yamato.

"I say with awe, deign to bless me by correcting the unwitting faults which, seen and heard by you, I have committed, by blowing off and clearing away the calamities which evil gods might inflict, by causing me to live long like the hard and lasting rock, and by repeating to the gods of heavenly origin and to the gods of earthly origin the petitions which I present every day, along with your breath, that they may hear with the sharp-earedness of the forth-galloping colt."

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[80] Adoration of the Mikado's residence is not mentioned in the *Tama-dasuki*, but is enjoined by the last edition (published in 1873) of the *Mai-tefu-zhiñ-pai Shiki* (form of morning prayer). As no form of words is given, it is impossible to say what the character of this prayer should be. The same book contains three other prayers not given in the *Tama-dasuki*, namely to the three primeval gods, to Ninigi no mikoto, and to Zhiñ-mu Ten-wau, while it omits the prayer to Adzumaterasu oho-kami (Tou-seu-guu or Iheyasu commonly called Goñ-geñ Sama).

[81] The word rendered here 'worship' is *wogamu*, which Hirata derives from *wori-kagamu*, a compound verb signifying 'to bend.' If this etymology is correct, 'bow down' would be a closer rendering.

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The two deities who are here addressed are the god and goddess of wind. Their first names mean Pillar of Heaven and Pillar of Earth, and are given because the wind prevades the space between Heaven and Earth, and supports the former as a pillar supports the roof of a [83] house. *Shina* in the alternate names means 'long breath'[82] 'Evil acts and words are of two kinds, those of which we are ourselves conscious, and those of which we are not conscious. Every one is certain to commit accidental offences, however careful he may be, and hence the practice of our ancient tongue was to say "deign to correct those failings of which I may have been guilty." But it is better to assume that we have committed such unconscious offences. If we pray that such as we have committed may be corrected, the gods are willing to pardon them. By "evil gods" are meant bad deities and demons who work harm to society and to individuals. They originated from the impurities contracted by Izanagi during his visit to the nether world, and cast off by him during the process of purification. They subsequently increased in number, especially after the introduction of Buddhism. The two deities of wind can of course blow away anything it pleases them to get rid of, and among other things the calamities which evil gods endeavour to inflict. As man is dependent on them for the breath which enables him to live, it is right to pray to them to give long life. This is also the reason why they are besought to carry our prayers to the gods of heavenly origin and to the gods of earthly origin.' As an illustration of the efficacy of prayer, Hirata gives a long account of a boy who was carried off in the year 1806 by goblins, and afterwards restored to his father, who had earnestly besought the intercession of Shinatsu-hiko and Shinatsu-hime with the other gods.

The next prayer is addressed to Amaterasu and the other gods who dwell in the sun, and consists simply in calling on them by name. The common belief of the lower classes appears to be that the sun is actually a god, and they may often be seen to worship on rising in the morning, by turning towards it, placing their hands together, and reciting prayers. The third [84] prayer is addressed to Izanami and the

[82] *Tsu* is the generic particle, and *hiko* and *hime* might be translated lord and lady. *Hime* is still used in the latter sense.

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other gods who dwell in the moon. Hirata says that although the *Mañ-yefu-shifu* contains verses about the moon, it was generally considered unlucky to admire it, the reason of which is explained by a verse in the *Ise Monogatari* to be that "man grows old by accumulating moons"; but on the 15th day of the 8th month it is customary to make offerings to the moon, because of her great brilliancy at that season of the year. This however may be a practice derived from the Chinese.

The fourth prayer is addressed to the gods of Ise, namely Amaterasu and Toyo-uke-bime no kami, with a certain number of subordinate deities in adjacent shrines.[58] Toyo-uke-bime was the daughter of Waka-musubi, who was the joint offspring of the god of Fire and the goddess of Soil. She has at least eight other names, all of which express the fact of her being the goddess of food, both vegetable, fish and flesh. Here we meet with a curious Shiñ-tau doctrine, according to which a divine being throws off portions of itself by a process of fissure, thus producing what are called *waki-mi-tama*, Parted-Spirits, with separate functions. Two of the parted spirits of Toyo-uke-bime thus formed are Kukunochi no kami, the producer of all trees, and Kayanu-hime no kami, the parent of all grasses. As rice and other seeds, cattle and the silkworm were produced from the dead body of Toyo-uke-bime, it is to this goddess and to the action of her 'Parted Spirits' above mentioned that mankind owes the blessings of food, clothing and lodgment. It was an ancient custom therefore to worship this goddess on moving into a new house, built of the wood and thatched with the grass of which she was the first cause. In one of the *norito* entitled *Ohotono hogahi*, a service of this kind performed twice annually at the Mikado's court, this goddess is besought to protect his Palace from harm.

She is also worshipped under the name of Uka-no-mi-tama [85] no Mikoto, along with two other gods, at the great temple Inari between Kiyauto and Fushimi. Temples consecrated to "Inari sama" are common all over Japan, and it is usually supposed that Inari is the name of a god; the mistake arises from the common Japanese practice of calling persons, and gods also, by the name of the place where they

[58] A detailed account of the legends relating to these goddesses has already been given in a paper on "The Shrines of Ise" published in the Journal of the Asiatic Society of Japan, vol. ii.

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reside. Another erroneous belief is that Inari sama is a fox, and many temples originally dedicated to foxes are consequently mis-called temples of Inari. One origin assigned for the error is the use of a Chinese character which means 'fox' in writing down phonetically Miketsu kami, which is an alternative name of Toyo-uke-bime. The truth is that the fox is the messenger of this goddess, and images of the animal are placed in front of her temples, which may have aided in confirming the error.

The worshipper is next directed to turn in the direction of the province of Hitachi, and bowing down as before, to repeat the following prayer:—

"From a distance I reverently worship with awe before Take-mika-dzuchi no kami, Futsu-nushi no kami and Funado no kami, to whom are consecrated the Palace of Kagushima[54] in the department of Kagushima in the province of Hitachi, the palace of Kadori in the department of Kadori in the province of Shimo-tsu-fusa, and the temple of Ikisu in the province of Hitachi, which are reverently styled the three temples of Adzuma."

Take-mika-dzuchi and Futsu-nushi have already been mentioned as the two gods who descended from heaven to conquer the country for Ninigi no mikoto, and Funado no kami acted as their guide. After persuading Oho-kuni-nushi to surrender the sovereignty of Japan, they slew or expelled all the evil gods 'who glittered like fire-flies or were disorderly as May-flies, banished to foreign countries all the demons who made rocks, stumps of trees, leaves of plants and the foam of the green waters to speak, and then ascended to heaven from the [86] province of Hitachi on a white cloud. The evil gods originated from the pollution contracted by Izanagi during his visit to the nether world, and having greatly increased in numbers, began to behave in a disorderly manner when Susanowo no mikoto showed them a bad example. Take-mika-dzuchi and Futsu-nushi drove them into Hitachi, whence they expelled them from Japanese soil. The two gods left their Parted-Spirits here, in the temples which were built in their honour.'

[54] Kagushima and Shimo-tsu-fusa are the archaic spelling of Kashima and Shimofusa. The first-named two temples have been described by Mr. C. W. Lawrence in a paper published in the Transactions of the Asiatic Society of Japan for 1874.

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Hirata says that these two gods are an example of Duality in Unity, of which many other similar cases exist. The gods of Wind and Metal are in pairs, male and female, but each pair is counted as a single deity; while Oho-wata-tsumi no kami, the god of the sea, is a Trinity in Unity. He remarks that these truths 'have a profound and mysterious signification,' but omits to give any explanation of the mystery, probably because no explanation is possible.

The sixth prayer is addressed to Oho-kuni-nushi, 'who rules the Unseen, and to his consort Suseri-bime, to whom is dedicated the ancient temple of Oho-yashiro in Idzumo. By the term "Unseen" (*kakuri-goto*) are meant peace or disturbance in the empire, its prosperity and adversity, the life and death, good and bad fortune of human beings, in fine, every supernatural event which cannot be ascribed to a definite author. The most fearful crimes which a man commits go unpunished by society so long as they are undiscovered, but they draw down on him the hatred of the invisible gods. The attainment of happiness by performing good acts is regulated by the same law. Even if the gods do not punish secret sins by the usual penalties of the law, such as strangulation, decapitation and transfixion on the cross, they inflict diseases, misfortunes, short life and extermination of the race. Sometimes they even cause a clue to be given by which secret crime is made known to the authorities who have power to punish. The gods bestow happiness and blessings on those who practise good, as effectually as if they [87] were to manifest themselves to our sight and give treasures, and even if the good do not obtain material rewards, they enjoy exemption from disease, good luck and long life; and prosperity is granted to their descendants. Never mind the praise or blame of fellow-men, but act so that you need not be ashamed before the gods of the Unseen. If you desire to practise true virtue, learn to stand in awe of the Unseen, and that will prevent you from doing wrong. Make a vow to the god who rules over the Unseen, and cultivate the conscience (*ma-go-koro*) implanted in you, and then you will never wander from the way. You cannot hope to live more than a hundred years under the most favorable circumstances, but as you will go to the Unseen Realm of Oho-kuni-nushi after death, and be subject to his rule, learn betimes to bow down before him.' In the *Tama no Mihashira* Hirata says that the spirits of

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the dead continue to exist in the unseen world, which is everywhere about us, and that they all become gods, of varying character and degrees of influence. Some reside in temples built in their honour, others hover near their tombs, and they continue to render services to their prince, parents, wife and children as when in the body. Besides praying to the primary spirit Oho-kuni-nushi, Hirata enjoins on his followers the necessity of addressing themselves also to his "Rough Spirit," worshipped in Yamato under the name of Oho-kuni-mitama, his "Gentle Spirit," the god of the famous temple of Miwa in the same province, and his son Kotoshiro-nushi, the god of truth. The dogma here implied must not be confounded with that before alluded to in speaking of "Parted-Spirits." "Rough Spirit" *(ara mi tama)* denotes a god in his character as a punisher of the wicked, while as a "Gentle Spirit" *(nigi mi tama)* he pardons the penitent. There is a third character called *saki mi tama* in which a god confers blessings. Human beings are also said to possess the rough spirit and the gentle spirit, which are explained to be the powerful excitement of the soul separating from the body, and acting independently. Thus the feeling of hatred is capable [88] of avenging injuries, a notable case of which is the death of unfaithful lovers caused by the indignation of the women whom they have wronged and deserted. Frequently the indignation puts on the form of the injured person, and appears to the doer of the wrong, without the knowledge of the injured person. A well-authenticated case of a Gentle Spirit appearing to its correlative Rough Spirit is mentioned in the *Ni-hoñ-gi*, where it is stated that when Oho-kuni-nushi was walking on the sea-shore, and lamenting that the departure of Sukuna-bikona had left him without a coadjutor in the task of civilizing the country, a god came towards him from the sea, and proffered his help. Oho-kuni-nushi did not recognize his other half, and asked his name, on which he received the answer, "I am thy *saki tama*."

The ninth prayer is addressed to Iha-naga-hime, the goddess of long life. The legend says that Ninigi no mikoto, while making an excursion in the neighbourhood of his palace, fell in with a beautiful young girl. On his inquiring her name, she said that it was Ko-no-hana-Sakuya-hime, daughter of Oho-yama-tsu-mi, the god of mountains, and that she had an elder sister named Iha-naga-hime. The young god-prince

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fell in love with her and demanded her in marriage from her father. Oho-yama-tsu-mi thereupon despatched the two sisters to him, but as the elder sister was very ugly, Ninigi no mikoto was frightened and sent her back. Upon this the father said, "My reason for offering both my daughters, was that if you had taken Iha-naga-hime into your service, the lives of the descendants of the heavenly gods would have been eternal, and if you had made use of Ko-no-hana-Saku-ya-hime, they would have been as beautiful as the flowers of the cherry-tree. But now that you have rejected the one and kept the other, they will be as frail as the blossoms, and the anger of Iha-naga-hime will shorten human life." This story presents all the characteristics of the myth. The name of the ugly daughter is a compound of *iha*, "rock," and *naga*, "long," and is symbolical of longevity; while the name of the [89] other is explained to mean 'the blossoming of the flowers of trees,' and signifies perishable beauty. The ancient text from which the legend is quoted says "this was the cause of the short lives of the men of the present day," and Hirata takes advantage of the occasion to remark that while it is very natural for a man "to prefer a beautiful wife, as the object of marriage is to beget children, he is far wiser who chooses his wife on account of her virtues." He says that although the son of Ninigi no mikoto lived 580 years at his Palace of Takachiho, that was a short life compared with the lives of those who had lived before him, and the lives of some of the early emperors from Jimmu, which extended over more than a century, were of course still shorter. In fact from the time of Ninigi no mikoto the years of the Mikado and his people continued to grow always fewer, for although it might be supposed that the consequences of Ninigi no mikoto's act would only affect his own immediate descendants, the Mikado's subjects were naturally bound not to live longer than their sovereign. He concludes by the safe opinion that those who wish to live long should constantly take care of their health, and at the same time pray to this goddess for her bessing.

Another of the prayers is to be addressed to the *ichi no miya*, or chief temple of the province in which the worshipper lives. It is not known with exactness at what period certain temples came to have this designation, but at all events it is not to be found in any document

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older than the 12th century. Nevertheless, Hirata is of opinion that the practice of making such a distinction cannot be wrong, since it has existed for so long a period that it must be supposed to have the sanction of the gods. Besides the *ichi no miya*, there exist in certain provinces temples called *Kuni-tama no yashiro*, which Motowori thinks are probably dedicated to persons who first settled there and cultivated the land, and also a third class called *Sou-shiya*. The origin of the latter term, which means general temple, is supposed to be that some of the ancient governors (*koku-shi*), whose duty it was on arriving in [90] their provinces, to make a tour for the purpose of worshipping at all the Shiñ-tau temples within their jurisdiction, compounded by worshipping only at the *ichi no miya*, if there happened to be one at the provincial capital, or built a new temple to which they gave the name of 'general temple.' Another suggestion is that it was at the *ichi-no-miya* that the governor began his round of worshipping, and that the name is derived from this circumstance. Kanetane, the editor of the *Tama-dasuki*, quotes a passage from the *Teu-ya Guñ-sai*, which shows that the new governor had to perform these religious rites before entering upon his administrative duties.

Amongst the ancient Shiñ-tau practices which have descended to the present day is that of presenting new-born infants to the local deity, in order to place them under his protection. This god is commonly called the *uji-gami* (family god), and the inhabitants of the district over which he is supposed to extend his favours stand to him in the relation of *uji-ko*, or children of the family. In Satsuma, Akita, and in some other provinces it is also the custom before starting on a journey to proceed to the temple of this god, and to beseech his protection until the person shall return home again. The priest gives him a paper charm to protect him from harm on the road, and he procures also a little sand from the site of the temple, to be mixed in small quantities with water, and drunk whenever he feels uncomfortable during the journey. Whatever remains of this sand has to be returned to the temple when the traveller reaches home again, and he has of course to give thanks for the protection which he has enjoyed.

The local deity ought correctly to be called *Ubu-suna no kami*, the god of the native earth (or sand), and this term is found in ancient

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writings. *Uji-gami* should only be applied to the common ancestor of a number of persons who bear the same family name, or if not to an ancestor, to some one who has merited equivalent honours by acquiring a title to their gratitude. The word *uji* being originally the same as *uchi*, 'within,' *uji-gami* must mean [91] the deity who is most closely connected by ties of worship with the persons comprehended 'within' a family or a community. The *Zhiñ-mei Shiki* contains the name of some *uji-gami* who were simply ancestral gods; but on the other hand the Fujiwara family, which was descended from Ame-no-koya-ne no mikoto, worshipped Take-mika-dzuchi and Futsu-nushi as their *uji-gami*. The importance attached in ancient time to the worship of the *uji-gami* is shown by grants of rice and immunities with respect to passports being given by the Mikado to nobles, in order that they might perform these duties. A regulation of the year 895, after stating that the *uji-gami* are mostly located in the Five Home Provinces,[55] says that any one who asks for leave in the second, fourth and eleventh months for the purpose of worshipping his ancestors, is to obtain it at once. It would appear from this order that the term had not at that time lost its original meaning. Hirata thinks that the confusion arose from the fact that the *uji-gami*, or ancestral gods, of the hereditary local chiefs called *Kuni-no-miya-tsu-ko* were at the same time the patron gods of the locality. Their subjects would naturally use both terms as synonymous, and as the one fell out of use, the other would come to be employed for the local god, whether he were an ancestor or not.

It is suggested by the author of the *Matsu no Ochi-ba* that what is now called the *Uji-gami* of a village was originally the collective name under which the inhabitants worshipped their respective ancestors in a single temple, and that this family-god eventually came to be looked on as the patron-god of the locality. Or perhaps, when there was already a temple to the local god, they worshipped their ancestors in the same building for convenience' sake, and thus the two were in the end confounded in one. Hirata does not approve this conjecture, but it certainly seems as probable as his own view, which indeed it appears to supplement. A third supposition is that *uji-gami* is a corruption of

[55] *Ki-nai*, that is Yamashiro, Yamato, Idzumi, Set-tsu and Kahachi.

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uchi no kami, the god of a family or [92] community, and that *ubu-suna no kami* is an alternative name for the *uji-gami* taken in the latter sense; so that the supposed confusion would be no confusion at all.

Hirata quotes another author, who remarks that the character of the patron-god affects the people, the animals, and the plants of the locality, which fact accounts for the local differences found to exist between individuals of one species taken from various parts of the country. All the *uji-gami* are under the orders of Oho-kuni-nushi, and acting as his agents, they rule the fortunes of human beings before their birth, during their life-time, and after their death. Consequently when a person removes his residence, his original *uji-gami* has to make arrangements with the *uji-gami* of the place whither he transfers his abode. On such occasions it is proper to take leave of the old god, and to pay a visit to the temple of the new god as soon as possible after coming within his jurisdiction. The apparent reasons which a man imagines have induced him to change his abode may be many, but the real reasons cannot be other than that, either he has offended his *uji-gami*, and is therefore expelled, or that the *uji-gami* of another place has negotiated his transfer. As the *uji-gami* has such influence over the welfare of his *protégés*, it is of the highest importance to stand well with him, and to enforce this argument Hirata narrates several stories of persons who were punished for neglecting their *uji-gami*.

Next to the *uji-gami* comes the *kami-dana* or shrine in which are worshipped the Penates. Every Japanese, with the exception of the more bigoted members of the Buddhist sects called Nichi-reñ-shiu and Itsu-kau-shiu, possesses such a shrine in his house. It contains various tablets covered with paper called *o-harahi* and *o-fuda*, on which are printed the titles of the gods of Ise and other gods in whom the householder places his trust. Before these tablets are offered up on certain occasions, as the New Year, and the 2nd, 15th and 28th days of the month, *sake* (called for this purpose *mi ki*), rice, and the leafy twigs of the *sakaki* (Cleyera japonica). The practice of different families [93] with respect to offerings is not perfectly uniform, either as to the articles offered, or the days on which this is done, but no one omits the *sake*. Every evening, too, a lighted wick floating in a saucer of oil is placed in the *kami-dana*.

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Hirata would add to the *o-harahi* of the two gods of Ise and the *fuda* of the other gods worshipped in this way an image of Sohodo no kami, the scare-crow. Concerning this god he says: 'Sohodo no kami, also called Kuye-biko, is the scare-crow placed in the fields to frighten away birds and animals, and though it is a very ugly and miserable creature, the divine books say of it "this is a god which knows everything in the empire, although his legs are unable to walk." As the spirits of all the gods have recourse to it, and perform wonders, it is a very dreadful deity, and therefore an image of it should be placed before the door of the shrine for the spirits of the gods who are bidden thither to rest upon.' The ancient legend says that, as Oho-kuni-nushi was walking along the shore, he saw a tiny god coming towards him on the crests of the waves, in a boat made of the milkweed shell, and dressed in the skin of a wren. When asked his name, he was silent, and none of the gods who were in Oho-kuni-nushi's following could tell. Then the *taniguku*[66] spoke, and said, "Kuye-biko will know." So they called Kuye-biko, who replied, on being asked, "This is Sukuna-bikona, the child of the Musubi no kami."

The following prayer is to be addressed to the *kami-dana*:—

"Reverently adoring the great god of the two palaces of Ise in the first place, the eight hundred myriads of celestial gods, the eight hundred myriads of terrestrial gods, all the fifteen hundred myriads[67] of gods to whom are consecrated the great and small temples in all provinces, all islands and all places of the Great Land of Eight Islands, the fifteen hundreds of [94] myriads of gods whom they cause to serve them, and the gods of branch-palaces and branch-temples, and Sohodo no kami, whom I have invited to the shrine set up on this divine shelf, and to whom I offer praises day by day, I pray with awe that they will deign to correct the unwitting faults which, heard and seen by them, I have committed, and blessing and favouring me according to the Powers which they severally wield, cause me to follow the divine example, and to perform good-works in the Way."

Hirata recounts several miracles worked by *o-harahi* of the Nai-

[66] Either the toad or the bull-frog.

[67] These numbers are merely figurative expressions,

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kun, which I am unfortunately obliged to omit for want of space, and gives a long explanation of the reason why Amaterasu, who detested Buddhism, allowed it to spread throughout the country. His arguments resemble in logical form very closely those by which the origin of evil is accounted for by theologians.

The fifteenth of the prayers is to be offered to what are called the *harahi-do no kami*, gods whose office it is to free the suppliant from evils, sins and pollutions of all kinds. Then follow prayers to the gods who keep off pestilence, to Ame-no-koya-ne no mikoto, who is regarded as the god of wisdom, to Ame-no-uzume no mikoto, the goddess of happiness, Toyo-uke-bime in her capacity as the protector of the abodes of men, the gods of the harvest, of the gate and the front court, of the kitchen fire-place (commonly called Kuwan-zhiñ-sama), of the well, of the privy, and of learning. Amongst the gods of learning he places Kada, Mabuchi and Motowori.

Last of all comes a prayer to the shrine, commonly called *butsu-dañ*, in which are deposited the monumental tablets of ancestors and deceased members of the family, who are supposed to become *hotoke* or perfect buddhas immediately after their death. Usually the *butsu-dañ* contains an image of the chief Buddhist god of the sect to which the family belongs placed in the centre, the monumental tablets being on either side. Fresh flowers are offered up as often they are needed, and the first portion of the rice boiled for the daily food of the household, besides a [95] first portion of any fruit or cooked food which the deceased are known to be fond of. Part of these practices, which are corruptions introduced into the native ancestor-worship by the Buddhist priests, should in Hirata's opinion be abandoned, and the name of the wooden cupboard in which the tablets are kept should be changed from *butsu-dañ* (Buddhist altar) to *tama-ya* (spirit house). Water and sprigs of the Cleyera should be offered up every day, and there is no objection to using flowers as a decoration, but incense (joss-stick) is an abomination. Amongst other observances which are in vogue, that of visiting the tomb of a parent or other member of the family on that day in each month which corresponds to the day of his death should be kept up, for this is not a Buddhist custom, and although the home of the spirits of the dead is in the *tama-ya*, they are present wherever they are wor-

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shipped, being gods and therefore ubiquitous. The festival in honour of departed spirits, which is celebrated on the 14th and 15th days of the 7th month, called *Boñ*,[58] being of Buddhist origin, ought to be abolished, and the ancient rule of holding the festival in the 2nd, 4th and 11th months be reverted to.

The origin of the worship of ancestors, says Hirata, dates from the descent of Ninigi no Mikoto, who was instructed by the creator and creatrix that the worship of the celestial and terrestrial gods was the most important part of Government. They taught Ama-no-koya-ne and Ama-no-futo-dama how to perform the rites, and attached them to his person. Zhiñ-mu Teñ-wau, after his victories, worshipped his ancestral gods on a mountain. It is equally the duty of a subject to be diligent in worshipping his ancestors, whose minister he should consider himself to be. The custom of adoption arose from the natural desire of having some one to perform sacrifices, and this desire ought not to be rendered of no avail by neglect. Devotion to the memory of ancestors is the mainspring of [96] all virtues. No one who discharges his duty to them will ever be disrespectful to the gods, or to his living parents. Such a man will also be faithful to his prince, loyal to his friends, and kind and gentle with his wife and children. For the essence of this devotion is in truth filial piety. These truths are confirmed also by the books of the Chinese, who say that "the loyal subject issues from the gate of the pious son," and again, "filial piety is the basis of all actions."

Hirata began to attract the notice of influential personages in 1822, when he was requested by the Abbot of Ueno, who was a Prince of the Blood, to present him with copies of his chief works on Shiñ-tau. In the following year he quitted the service of the *daimiyau* Itakura, and made a journey to Kiyauto, where he obtained introductions to nobles of the Court, who brought his writings to the notice of the retired mikado Kuwau-kaku. On returning to Yedo, he devoted himself again to his studies, and during the next fifteen years produced a considerable number of works on Shiñ-tau and various other subjects. In 1836 he printed a book called the *Dai-Fu-sau-koku Kau*, which

[58] See Eitel's Handbook of Chinese Buddhism; Art. Ulamba.

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drew forth warm praises from the Mikado and the Kuwañ-baku,[59] and gave great offence to the Shiyauguñ's government, who ordered it to be suppressed, on the ground, it is said, that it contained detailed information about Japan, and might perhaps get into the hands of foreigners. In 1838 he entered the service of the *daimiyau* of Akita. From the time when he quitted the Itakura family in 1823 he had received many favours from the princes of Mito, Tayasu and Wohari, the latter of whom granted him an allowance of rice

In 1840 he had a dispute with the government almanac makers about one of his works named *Teñ-teu Mu-kiu Reki* upon the native chronology, and his opponents had sufficient influence to get him banished to Akita, with an order to publish nothing more. He left Yedo ten days after the issue of the decree, and died at Kubota in 1843, being over sixty-seven years of age.

[97] His son Kanetane, in the biographical notice which forms part of the last volume of the *Tama-dasuki*, says that the number of pupils who entered his school was altogether five hundred and fifty-three. His acknowledged works amount to over one hundred, besides those which he never published. A list of the most important is to be found at the end of the *Nifu-gaku Moñ-dafu*, and the biographical notice just referred to contains the dates at which each of them was begun and completed.

Hirata's works are composed in two styles, the one almost entirely colloquial, the other formed on the model of the ancient prose-writers, and crowded with obsolete words which add considerably to the difficulties of the student. His graver writings fall far short of those of Motowori in point of clearness for this reason. His scholarship appears to have been very extensive, and without a wide acquaintance with ancient Chinese literature and Buddhism it would be impossible to follow him into the remote regions whither his researches sometimes carry him. He speaks so frequently of analogies between the native traditions, and those of the Buddhists and ancient Chinese, which he interprets by the theory that the latter borrowed from the Japanese, that it is a matter of regret not to be able to test his statements; since

[59] The Mikado's prime minister, then merely a nominal office.

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if the supposed analogies really exist, they would be of considerable use in tracing the relationship of the Japanese to the races of the Asiatic Continent.

The object of this paper being merely to give some account of the views entertained by a school of modern writers on Shiñ-tau, no attempt has been made to determine which of their opinions are in accordance, and which at variance, with the real nature of this religion. It is, however, manifest that such of their conclusions as are founded on the alleged infallibility of the ancient records or on any premises which involve the miraculous or supernatural must for those very reasons be discredited; and the real nature and origin of Shiñ-tau must be decided by the usual canons of historical criticism. The most effectual means of conducting the investigation would be a comparison of [98] the legends in the *Ko-zhi-ki* and the *Ni-hoñ-gi*, and the rites and ceremonies concerning which the *Norito* and other parts of the *Yeñ-gi Shiki* afford so much information, with what is known of other ancient religions. A correct interpretation of the extant texts is the first requisite, and in arriving at this the philological labours of Mabuchi, Motowori and Hirata, imperfect as their results must naturally be, will be of immense assistance. At the same time, in order to estimate the exact value of these results, the safest method would be to follow the order proposed by Motowori for studying the old literature, and to begin by a careful analysis of the language of the *Geñ-zhi* and other *Monogatari*, which form the key to the *Mañ-yefu-shifu*; for without an accurate knowledge of the latter, the proper reading of the Chinese characters in which the *Ko-zhi-ki*, *Ni-hoñ-gi* and *Norito* have been written down cannot be known with any degree of certainty. By carrying out this programme, and following in the footsteps of the native scholars, it would be alone possible to check their work and at the same to arrive at correct conclusions, for it is very clear that the last word has yet to be said on the subject of Shiñ-tau.

FINIS.

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